EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-21

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2021 Base Option Period Number 1	R2 NPDES Program Support

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/20/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (*Max 2*): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 07/01/2016 To 06/30/2021		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Sieglinde Pylypchuk (Signature) (Date)		Branch/Mail Code: Phone Number: 212-637-4133 FAX Number:
Project Officer Name: Tangela Cooper (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0369 FAX Number:
Other Agency Official Name (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature)	9/20/2017 (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-16-003
WORK ASSIGNMENT 1-21

TITLE: U.S. EPA Region 2 NPDES Program Support

WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (WACOR):

COR Name: Sieglinde Pylypchuk **Phone:** 212-637-4133 **Email:** pylypchuk.sieglinde@epa.gov	**USPS Mailing Address** Clean Water Division U.S. Environmental Protection Agency, Region 2 290 Broadway New York, NY 10007

ALTERNATE WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (AWACOR):

COR Name: Maureen Krudner **Phone:** 212-637-3874 **Email:** krudner.maureen@epa.gov	**USPS Mailing Address** Clean Water Division U.S. Environmental Protection Agency, Region 2 290 Broadway New York, NY 10007

PERIOD OF PERFORMANCE: September 20, 2017 through June 30, 2018

ESTIMATED LEVEL OF EFFORT (LOE): 140 hours

BACKGROUND: National Pollutant Discharge Elimination System (NPDES) permits in the Commonwealth of Puerto Rico are issued by the U.S. Environmental Protection Agency (EPA) Region 2. In New Jersey and New York, the NPDES program is implemented by the state through a State Pollutant Discharge Elimination System (SPDES) program managed by the State of New Jersey Department of Environmental Protection and the New York State Department of Environmental Conservation, respectively. In the U.S. Virgin Islands, the NPDES program is implemented by the territory through a Territorial Pollutant Discharge Elimination System (TPDES) program managed by the U.S. Virgin Islands Department of Planning and Natural Resources. EPA Region 2 works closely with the state SPDES and TPDES programs to ensure program integrity and provided technical assistance. Through the completion of the Tasks described in this Work Assignment, EPA Region 2 will be able to provide more effective oversight and technical assistance to state programs.

PURPOSE AND OBJECTIVE

During the period of performance, the contractor, under this Work Assignment, will provide NPDES program support to EPA Region 2 for SPDES program support in New York. The contractor will ensure compliance with Agency standards.

SCOPE OF WORK

TASK 0: WORK ASSIGNMENT MANAGEMENT

The contractor shall routinely provide performance updates, estimated costs, level of effort (LOE) and key deliverables upon request from EPA's Work Assignment Contracting Officer's Representative (WACOR) and/or Alternative WACOR for all ongoing tasks. Regularly scheduled bi-weekly conference calls and in-person meetings, as needed, will be coordinated between EPA's WACOR and the contractor to discuss the work assignment and progress of tasks. In addition, the contractor shall provide a monthly progress report that includes implementation plan(s); issues encountered and lessons learned regarding the progress of all tasks, the tracking of expenditures, and any other administrative activities, as requested.

Deliverables: The contractor shall provide a monthly progress report that will include a description of the work completed during the month. The contractor shall maintain a cumulative list of all technical directives. The contractor shall report in accordance with Contract Reporting Requirements.

TASK 1: New York State Department of Environmental Conservation State Pollutant Discharge Elimination System Permit Writers' Manual.

The Contractor shall provide technical review and administrative support on the draft New York State Department of Environmental Conservation SPDES Permit Writers' Manual.

The New York State Department of Environmental Conservation (NYSDEC) SPDES Permit Writers' Manual is currently in draft form. The purpose of the manual is to create a comprehensive document to guide NYSDEC staff through the process of drafting a SPDES permit that complies with both federal and state regulations and guidance. The manual is planned to replace the following NYSDEC Technical and Operational Guidance Series[1] documents:

- TOGS 1.2.1 – Industrial Permit Writing, February 1998 Edition,
- TOGS 1.2.2 – Administrative Procedures and the Environmental Benefit Permit Strategy for Individual SPDES Permits, January 2012 Edition,
- TOGS 1.2.4 – Individual Sewage Treatment System Discharges to Surface Waters, October 1990 Edition,
- TOGS 1.3.1[2] - Total Maximum Daily Loads & Water Quality-Based Effluent Limitations, February 1998 Edition,
- TOGS 1.3.1A – Amendment – Organic Substances, July 1996 Edition,
- TOGS 1.3.1B – Amendment – Low and Intermittent Flow Streams, July 1996 Edition,
- TOGS 1.3.1C – Amendment – Metals, July 1996 Edition,
- TOGS 1.3.1D – Amendment – Waste Assimilation Capacity Determinations for Isolated Wastewater Discharges in Fresh Streams, July 1996 Edition,

[1] NYSDEC's TOGS are available at http://www.dec.ny.gov/regulations/2652.html

[2] Pages 1-3 of this existing TOGS were not incorporated into this document, as they are not directly related to the development of SPDES permits, rather to the development of TMDL's.

- TOGS 1.3.1E – Amendment – Permit Limit Development for Certain Parameters, July 1996 Edition,
- TOGS 1.3.2 – Acute and Chronic Toxicity Testing in the SPDES Permit Program, January 2008 Edition,
- TOGS 1.3.3 – SPDES Permit Development for POTWs, February 1998 Edition,
- TOGS 1.3.5 – Waste Assimilation Capacity Determinations for Isolated Wastewater Discharges in Fresh Water Streams, October 1990 Edition,
- TOGS 1.3.6 – Phosphorous Removal Requirements for Waste Water Discharges to Lake and Lake Watersheds, December 1988 Edition, and
- TOGS 1.3.7 – Analytical Detectability & Quantitation Guidelines for Selected Environmental Parameters, July 1990 Edition.

The initial skeleton of the document was developed by Tetra Tech, under an EPA contract and in close partnership with NYSDEC, and was modeled after the 2010 EPA NPDES Permit Writers' Manual[3]. Since Tetra Tech's involvement, NYSDEC has made extensive edits to address outdated policies, incorporate additional guidance, and further customize the manual to meet their specific needs. The next steps, which the Contractor will assist with, are technical review and administrative support.

The Contractor shall provide technical review on the NYSDEC SPDES Permit Writers' Manual which must include a preliminary review of the content of the manual to ensure clarity, consistency, and confirmation with EPA regulation and guidance. This review should prioritize the following chapters in this order:

- Chapter 6 – Water Quality-Based Effluent Limitations (~84 pages)
- Chapter 5 – Technology-Based Effluent Limitations (~50 pages)
- Chapter 9 – Special Conditions (~21 pages)
- Chapter 7 – Final Effluent Limitations and Anti-Backsliding (~5 pages)
- Chapter 8 – Monitoring and Reporting Conditions (~14 pages)

Review of the remaining chapters (full document is ~297 pages) will be determined based on the Level of Effort remaining once the priority chapter review has been completed. The Contractor will coordinate closely with EPA R2 and NYSDEC regarding the technical review and administrative support.
The Contractor shall provide administrative support on the NYSDEC SPDES Permit Writers' Manual. The administrative support should include, but not be limited to:

- Re-numbering, -formatting, -labeling, -referencing the document to make the document accurate following the deletion of the Chapter 4 placeholder,
- Create a chart and exhibit Table of Contents,
- Update hyperlink references as needed, and
- Ensure the formatting of text size, fonts, page numbers, examples, etc. is consistent throughout the document.

Deliverables: The contractor shall participate in regular tele- or web-meetings with EPA and/or NYSDEC, prepare meeting notes and provide those notes to EPA R2 within 3 business days of

[3] Available at: https://www.epa.gov/npdes/npdes-permit-writers-manual

the call. The final deliverable of the NYSDEC Permit Writers' Manual shall be submitted no later than June 30, 2018, as an electronic Word document.

DELIVERABLES REQUIRED AND SCHEDULE FOR COMPLETION OF TASKS

Task	Item Require	Due Date	Number of Copies and Format Requirements
0	Monthly progress report	Last week day of each month	Electronic, Word Format or PDF
1	Participate in regular tele- or web-meetings with EPA R2 and NYSDEC to discuss technical and administrative edits and provide meeting notes to EPA R2	Submit meeting notes with 3 working days of the meeting	Electronic, Word format
1	Submit the final deliverable of the NYSDEC SPDES Permit Writers' Manual	No later than June 30, 2018	Electronic, Word format

The Contractor shall notify the CO and WACOR in writing when 75% of the authorized work assignment LOE/labor hours have been expended.

CONTRACT PWS REFERENCE

See Contract Performance Work Statement, Task 3.1, page 3 of 28.

ANTICIPATED TRAVEL REQUIREMENTS

This Work Assignment does not include any travel.

ADDITIONAL REQUIREMENTS

Office direct costs (ODCs) for copying, postage/courier, supplies, computer usage, and graphics are allowed. No other ODCs are allowable as a direct charge to this delivery order without the prior written approval of the Contracting Officer.

Upon issuance of written technical direction, the Contractor shall submit for inspection of all work in progress at any time under this work assignment. The Contractor shall develop and maintain files supporting each task.

The contractor shall contact the Contracting Officer (CO) and/or the CL-COR by telephone to discuss any problems that may adversely affect the work on this Work Assignment. Within five (5) calendar days the contractor shall follow the phone call with a brief written explanation of the problem, including any actions already taken, and/or recommended solutions to correct the problem. Written explanation shall be made available to the CO and the PO.

CONTRACTOR IDENTIFICATION

To avoid any perception that contractor personnel are EPA employees, the contractor shall assure that contractor personnel are clearly identified as independent contractors of EPA when attending meetings with outside parties or visiting field sites.

CONTROL REQUIREMENTS

Quality Assurance Project Plan (QAPP):

Publishing on the NPDES website does not require a QAPP, since the people who generate the data are responsible for the data's quality, and it is their responsibility to develop a QAPP, if one is needed for their primary data uses. The contractor shall provide source references for data that is published on the website.

Organizational Conflict of Interest:

The Contractor shall warrant that, to the best of the Contractor's knowledge and belief, there are no relevant facts or circumstances which could give rise to an organizational conflict of interest, as defined in FAR Subpart 9.5, or that the contractor has disclosed all such relevant information. See contract clause 1552.209-71 Organization of Conflict of Interest.

Notification of Conflicts of Interest Regarding Personnel:

The Contractor shall immediately notify the CL-COR and the Contracting Officer of (1) any actual or potential personal conflict of interest with regard to any of its employees working on or having access to information regarding this contract, or (2) any such conflicts concerning subcontractor employees or consultants working on or having access to information regarding the contract, when such conflicts have been reported to the Contractor. A personal conflict of interest is defined as a relationship of an employee, subcontractor employee, or consultant with an entity that may impair the objectivity of the employee, subcontractor employee, or consultant in performing the contract work. See Section H.4, contract clause EPAAR 1552.209-73 Notification of Conflict of Interest.

Enforcement Sensitive Information:

The contractor recognizes that contractor employees in performing tasks specified by this WA may have access to data/information, either provided by the government or first generated during contract performance, of enforcement sensitive nature which should not be released to the public without Environmental Protection Agency (EPA) approval. Enforcement sensitive refers to records or information compiled for law enforcement purposes (whether administrative, civil or criminal), the disclosure of which could reasonably be expected to interfere with the enforcement action. It is imperative that all contractor personnel, including but not limited to, subcontractor and consultant personnel assigned to work on this contract and/or WA, or with access to materials developed pursuant to such efforts, understand that this information is confidential and any disclosure or misuse of the information may result in prosecution to the fullest extent of the law. All contractor personnel are expected to exercise due diligence in safeguarding, handling or disposing of any such information.

Project Employee Confidentiality Agreement

The contractor agrees that the contractor employee will not disclose, either in whole or in part, to any entity external to the EPA, the Department of Justice, or the contractor, any information or data (as defined in FAR Section 27.401) provided by the government or first generated by the contractor under this contract, any site-specific cost information, or any enforcement strategy without first obtaining the written permission of the EPA CL-COR. If a contractor, through an employee or otherwise, is subpoenaed to testify or produce documents, which could result in such disclosure, the contractor must provide immediate advance notification to the EPA so that the EPA can take action to prevent such disclosure. Such agreements shall be effective for the life and for a period of five (5) years after completion of the contract.

Handling of Confidential Business Information (CBI)

Contractor's access to TSCA CBI must comply with the procedures set forth in the TSCA CBI Security Manual. Likewise, access to FIFRA CBI shall follow the security procedures set forth in the FIFRA Information Security Manual.

To the extent that the work under this contract requires access to proprietary or confidential business or financial data of other companies, and as long as such data remains proprietary or confidential, the contractor shall protect such data from unauthorized use and disclosure.

All files or other information identified as Confidential Business Information (CBI) shall be treated as confidential and kept in a secure area with access limited to only contractor personnel directly involved in the case or special project assignment. The contractor, subcontractor, and consultant personnel are bound by the requirements and sanctions contained in their contracts with the EPA and in EPA's confidentiality regulations found at 40 CFR Part 2, Subpart B. The contractor subcontractors, and consultant must adhere to EPA-approved security plans which describes procedures to protect CBI, and are required to sign non-disclosure agreements before gaining access to CBI.

All official data, findings, and results of investigations and studies completed by the contractor shall be available for EPA and DOJ internal use only. The contractor shall not release any part of such data without the written direction of the WACOR.

Conference/Meeting Guidelines and Limitations

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The WACOR will then prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

PERFORMANCE SURVEILLANCE PLAN			
Performance Requirement	**Measurable Performance Standards**	**Surveillance Methods**	**Incentives/Disincentives**
Management and Communications: During the life of this work assignment, the Contractor shall notify EPA immediately of any issues that may impact the timeliness of deliverables of the problems associated with the development of deliverables.	The Contractor shall maintain contact with the WACOR throughout the performance of the work assignment. The contractor shall identify to the WACOR any delays with regard to deliverables not less than one week prior to the deliverable date that has been established in the work assignment or technical direction document. The contractor shall identify to the WACOR any issues or concerns that have a direct impact on project schedules within three (3) days of occurrence. The contractor shall provide options for EPA's consideration on resolving or mitigating the impacts identified.	WACOR and CL-COR (as necessary) will allocate the time needed to discuss and address all issues identified by the Contractor. The WACOR and CL-COR will document and maintain a complete record of the issues, agreements and outcome. The WACOR and CL-COR will review monthly progress reports for indicators of problems not previously mentioned. The WACOR will also monitor the timely receipt of deliverables. For those that are late without prior notice, the EPA will formally document to the Contracting Officer the late delivery.	If the contractor fails to implement corrective actions after EPA identifies and provided written documentation of performance issues, EPA will rate this performance category "unsatisfactory." If three or more the active work assignments for the period are rated unsatisfactory, EPA will rate the Business Relations category as unsatisfactory in the CPARS Contract Performance System.
Cost Management and Control: The Contractor shall perform all work in an efficient and cost effective manner, applying cost control measures where practical.	The Contractor shall monitor, track and accurately report level of effort, labor cost, other direct cost and fee expenditures to EPA through monthly progress reports and approved special reporting requirements. The Contractor shall assign appropriately leveled and skilled personnel to all tasks. The contractor should not exceed established work assignment ceilings and, in general, should expend dollars and hours at	The EPA CL-COR will routinely meet with the Contractor's Project Manager to discuss the work progress and contract and individual work assignment level expenditures. The EPA CL-COR and WACOR shall review the Contractor's monthly progress reports and request the Work Assignment Contracting Officer's Representative to ensure that	EPA will thoroughly review work assignment funding ceiling overruns to determine the contractor's ability to control the situation. If EPA determines that the contractor failed to control cost, the contractor will be rated "unsatisfactory" in this category. Multiple incidents of work assignment overrun that result in an overall cost overrun of greater than 4% of the approved total work assignment funding for the current contract period, will result in an

	similar ratios. If either the expenditure of hours or dollars deviates significantly, the contractor shall provide an explanation in its Monthly Progress Report.	ceilings are not exceeded, that progress is being made, and that the contractor is effectively utilizing the LOE provided under the work assignment.	unsatisfactory rating in the CPARS Contract Performance System.
Quality of Product/Services: The contractor shall ensure documents developed under this task order are quality products that are factual and based on sound science and engineering principles.	Products delivered under this work assignment must not contain any major factual errors. The analyses provided in each product shall be logical, consistent, and defensible.	The WACOR will review all documents delivered under this work assignment for content accuracy.	If EPA determines that the contractor's analyses is factually inaccurate or if significant technical errors are found in any documents produced by the contractor, EPA may determine that the cost associated with redoing the work shall be borne by the contractor. Multiple incidents of this nature under the contract will result in an unsatisfactory rating for Quality and Manage Control being reported to the CPARS Contract Performance System.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-22

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2018 Base Option Period Number 1	NPDES ICR Support

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:
No work shall commence on this Work Assignment until July 1, 2017.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 07/01/2016 To 06/30/2018 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee — LOE:

Cumulative Approved: — Cost/Fee — LOE:

Work Assignment Manager Name: Amelia Letnes (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-5627
	FAX Number:	
Project Officer Name: Tangela Cooper (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-0369
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Brad Heath (Signature) 7/1/2017 (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2352
	FAX Number:	

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-16-003
WORK ASSIGNMENT 1-22

Title: Support for NPDES Data Collection and Information Management

Work Assignment Contracting Officer's Representative (WACOR):

Amelia Letnes	**USPS Mailing Address**	**Courier Address**
Phone: (202) 564-5627	Water Permits Division	EPA East Building
Fax (202) 564-9544	1200 Pennsylvania Ave., NW	1201 Constitution Ave., NW
Letnes.amelia@epa.gov	Mail Code 4203M	Room 7135D
	Washington, DC 20460	Washington, DC 20004

Period of Performance: July 1, 2017 through June 30, 2018

Background: Under the Paperwork Reduction Act (PRA) of 1995, the Agency is required to obtain Office of Management and Budget (OMB) approval before it can request the public to submit information or retain records, be it via paper or electronically. The package of materials describing an information collection that is submitted by the Agency to OMB is called an "Information Collection Request" or "ICR." Any monitoring, reporting, or record keeping requirement imposed on non-federal respondents by EPA will require an ICR. When an ICR is needed, it is subject to OMB review and approval regardless of whether the information is collected voluntarily, or is required to receive a grant or a benefit. Often, the information collection effort is aided by the use of OMB-approved forms associated with the ICR. As with all information collection activities, EPA must routinely evaluate its forms and make modifications as necessary to reflect current responsibilities and identify opportunities to streamline information collection efforts. Preparing an ICR requires that EPA estimate the burden incurred by respondents and the Agency for collecting, reporting, and maintaining the necessary information.

EPA has a working draft NPDES ICR that covers all NPDES data collection. This is a new consolidation of multiple existing ICRs, and also changed format from the EPA template to the OMB template. EPA will provide the contractor with the consolidated ICR and supporting documentation as well as any of the previous ICRs needed for the work.

Scope of Work:

This work assignment provides for support to the Water Permits Division to address ongoing data collection needs as well as to begin to resolve information management challenges. The Contractor shall provide technical support to EPA under the tasks described below. Support under the work assignment may require the Contractor to perform on a rapid response, quick turn-around basis.

The document has been drafted and is ready for first public notice, but still requires a copy edit and may require other specific fixes. The contractor will also support EPA in finalizing the ICR, including preparing the data for entry into the data system as well as drafting a response to

comments document as necessary.

Task 1: Finalize Draft ICR

EPA has a draft consolidated ICR that is ready for first public notice. The following ICRs have been included in the consolidated ICR:

ICR Number	Title	Expiration
2040-0250	Consolidated Animal Sectors ICR	05/31/2019
2040-0284	Pesticides General Permit ICR	03/31/2019
2040-0241	Cooling Water Intake Structures - New Facility	11/30/2019
2040-0004	Consolidated NPDES ICR	12/31/2017
2040-0009	National Pretreatment Program: Streamlining Final Rule	04/30/2019
2040-0257	Cooling Water Intake Structures Existing Facility (Phase II)	10/31/2017
2040-0268	Cooling Water Intake Structures at Phase III Facilities	07/31/2017
N/A	Steam-Electric ELG	N/A
N/A	E-Reporting Rulemaking	N/A

Activities under this WA include:
1. Respond to EPA comments on draft ICR documents and revise as necessary
2. Revise draft Federal Register notice as necessary based on edits to ICR document
3. Prepare draft responses to public comments on the draft supporting statement
4. Prepare final ICR(s) supporting statements
5. Prepare materials for submission to OMB

Task 1 Deliverables:
Revised document including copy edit and any necessary updates – 7/15/17
Response to public comments – 2 weeks after end of public notice period
Final document for OMB submission – 3 weeks after end of public notice period

Level of Effort:
EPA estimates 50 hours for this task

Task 2: Quality Assurance Project Plan
QAPP Requirement. EPA requires that all environmental data used in decision making be supported by an approved Quality Assurance Project Plan (QAPP). The following deliverables may contain environmental data: ICRs with estimated costs and burdens, documents associated with ICR development (e.g., ICR supporting statements, EPA response to EPA and public comments on the draft ICRs, Form 83-1, action memos, fact sheets, consolidated ICR plans) outlines of information and issues (such as data gaps) to be addressed, and additional deliverables specified in technical directives. If these deliverables do contain environmental data, a QAPP is required to describe the /contractor's plan for assuring the quality of these data over their life cycle. The contractor may begin work on data-related activities (e.g., data generation, data management, data distribution, or data use) described in Tasks 1 of this work assignment pending QAPP approval. All data-related activities shall be conducted in accordance with the Office of Water Quality Management Plan

(QMP).

Task 2 deliverables: The contractor should submit the updated QAPP within 30 days of the receipt of this work assignment. The contractor should confer with the WACOR and QA Coordinator to discuss updating the QAPP should any questions or need for clarification arise. Monthly progress reports should describe (a) the contractor's progress on implementing the QAPP and resolving old data quality issues, and (b) any new issues.

OTHER REQUIREMENTS

Reporting

Progress Reports shall be submitted in accordance with the reporting requirements of the contract. In addition, the contractor shall maintain contact with the WACOR to advise of progress and problems. All documents shall be delivered in Word, Excel, HTML, and/or PDF format, as requested by the WACOR. The contractor shall notify the EPA immediately when expenditures of 75% and 90% of the work assignment LOE or funding (including pipeline costs) are reached.

The contractor shall be prepared to submit for inspection copies of all work in progress any time as requested by the WACOR. The contractor shall not release information or comments on works performed under this work assignment without the WACOR's prior written authorization. Wherever practicable, all written materials submitted to EPA must be doubled-sided and on recycled paper. All computer disks submitted to the WACOR shall be scanned for, and identified as free from viruses.

Travel

No travel other than local travel is expected under this work assignment.

Conference/Meeting Guidelines and Limitations

The contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

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Work Assignment

Work Assignment Number: 1-22

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2018 Base Option Period Number 1	NPDES ICR Support

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 09/12/2017 To 06/30/2018

Comments:
The purpose of this Amendment 1 is to ADD Jennifer Chan (Phone: 202-564-3067; Fax: 202-564-6384; E-mail: chan.jennifer@epa.gov) as the Alternate Work Assignment Contracting Officer's Representative (AWACOR).

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
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Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	07/01/2016 To 06/30/2018		
This Action:			
Total:			

Work Plan / Cost Estimate Approvals

		Cost/Fee	LOE:
Contractor WP Dated:			
Cumulative Approved:		Cost/Fee	LOE:

Work Assignment Manager Name: Amelia Letnes (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-5627
	FAX Number:	
Project Officer Name: Tangela Cooper (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-0369
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Brad Heath (Signature) 9/12/2017 (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2352
	FAX Number:	

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-23

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2021 Base Option Period Number 1	Vessel Discharge Management

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/06/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (*Max 2*): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 07/01/2016 To 06/30/2021		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Jack Faulk (Signature) (Date)		Branch/Mail Code: Phone Number: 202-564-0768 FAX Number:
Project Officer Name: Tangela Cooper (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0369 FAX Number:
Other Agency Official Name (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature)	9/6/2017 (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-16-003
WORK ASSIGNMENT 1-23

TITLE: Vessel Discharge Management

WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (WACOR):

Jack Faulk Phone: 202-564-0768 Fax: 202-564-6392 faulk.jack@epa.gov	**USPS Mailing Address** US EPA Mail Code 4203M 1200 Pennsylvania Ave, NW Washington, DC 20460	**Courier Address** US EPA Room 7329F 1201 Constitution Ave, NW Washington, DC 20001

PERIOD OF PERFORMANCE: September 6, 2017 through June 30, 2018

BACKGROUND: Due to a 2006 court order, EPA began permitting incidental vessel discharges from many vessels on February 6, 2009. The 2008 and 2013 Vessel General Permit (VGP) regulates discharges incidental to the normal operation of vessels operating in a capacity as a means of transportation. The VGP includes general effluent limits applicable to all discharges; general effluent limits applicable to 27 specific discharge streams; narrative water-quality based effluent limits; inspection, monitoring, recordkeeping, and reporting requirements; and additional requirements applicable to certain vessel types.

On July 31, 2008, Senate bill S. 3298 was signed into law (P.L. No. 110-299). This law generally imposes a two-year moratorium during which time neither EPA nor states can require NPDES permits for discharges incidental to the normal operation of commercial fishing vessels and other non-recreational vessels less than 79 feet. Among other things, the moratorium does not apply to ballast water. P.L. 110-299 also directed EPA to conduct a study of vessel discharges and issue a report to Congress. This report was finalized in August 2010. The moratorium for these vessels was extended to December 2014 and then again to December 2017.

In September 2014, EPA promulgated the 2013 Small Vessel General Permit (sVGP) to cover those vessels in the event the moratorium is not extended.

PURPOSE AND OBJECTIVE: The purpose of this work assignment is to support EPA's National Pollutant Discharge Elimination System (NPDES) vessel permitting program. Under this work assignment, the Contractor shall provide technical support to EPA Office of Wastewater Management (OWM) Water Permits Division (WPD) to develop technical materials for EPA's use in implementing the vessel general discharge management programs. The support shall focus primarily on developing background and supporting information for EPA's vessel permitting program, conducting research for vessel related discharge issues, and developing and providing outreach to affected stakeholders. The Contractor shall provide support to EPA with the following tasks:

- Develop a work plan and provide monthly progress reports;
- Provide quality assurance, including developing a Supplemental Quality Assurance Project Plan (SQAPP), as necessary to cover work under this work assignment;
- Provide research and technical support for EPA's vessel permitting program, including development of technical development documents on specific topics (e.g., ballast water management);
- Support development of draft/final VGP/sVGP documentation as part of the permit issuance process;
- Provide technical support implementing EPA's obligations as a result of the successful Endangered Species Act (ESA) consultation for the sVGP and VGP; and
- Support implementation and outreach for the VGP and sVGP and other vessel-related program activities.

SCOPE OF WORK – (Total LOE – 4,000 hours)

TASK 0: WORK ASSIGNMENT MANAGEMENT ***(Task 1 under Contract EP-C-12-021, WA 4-53)***

The Contractor will prepare and submit a work plan and cost estimate for all tasks of the work assignment within 30 calendar days of receipt of the WA. The work plan shall present the technical approach by task, including any assumptions used for the approach; the project schedule and deliverables; staffing details; level of effort by task, staff member, and professional labor mix; and the estimated cost. Also, the Contractor will respond to any requests and technical directives from the WACOR within 5 business days or as otherwise specified in the request or technical directive.

Regularly scheduled bi-weekly conference calls and in-person meetings, as needed, will be coordinated between EPA's WACOR and the Contractor to discuss the work assignment and progress of tasks. The Contractor shall provide electronic copies of the monthly progress reports to the EPA Project Officer (PO), WACOR, and alternate WACOR. Each progress report shall describe the technical work and expenditures for the same time period as the corresponding invoice. The reports shall list by task the amount of work completed and include a table of hours by personnel for each task. The reports also shall identify any problems or difficulties.

The Contractor shall immediately notify the WACOR by telephone of any problems that may impede performance, along with any corrective actions needed to solve the problems. The Contractor shall notify the CO and WACOR in writing when 75% of the authorized work assignment LOE/labor hours have been expended.

In addition, the Contractor shall provide an accountability report about how and whether the activities/reports in this work assignment have furthered EPA's goals toward protecting the Great Lakes from invasive species (e.g., a short description of how funds were used for both this and previous contract periods, how much was spent on each subtask, and why the work is directly relevant to the goal of preventing the introduction of new invasive species to the Great Lakes and slowing their dispersal pathways in those water bodies).

TASK 1: QUALITY ASSURANCE *(Task 2 under Contract EP-C-12-021, WA 4-53)*

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved QAPP to assure the quality, objectivity, integrity and utility of the data and information used in the project.

QA Project Plan Requirements

EPA policy requires that an approved Quality Assurance Project Plan (QAPP) or programmatic Quality Assurance Project Plan (p-QAPP) be in place for work that involves the collection, generation, evaluation, analysis or use of primary environmental data. The QAPP or p-QAPP defines and documents how specific data generation and collection activities shall be planned, implemented, and assessed during a particular project. This contract has an approved p-QAPP for all necessary work envisioned under this work assignment.

The Contractor shall adhere to the approved p-QAPP when generating, collecting and determining the use of data and information for any applicable task under this work assignment. If any work required under this work assignment is not covered under the p-QAPP, the Contractor shall prepare a supplemental QAPP (s-QAPP) for those tasks.

TASK 2: TECHNICAL AND IMPLEMENTATION SUPPORT TO EPA'S VESSEL GENERAL PERMIT PROGRAM *(Task 5 under Contract EP-C-12-021, WA 4-53)*

The Contractor shall support EPA's development of technical and factual materials for EPA use in implementing the Vessel General Permitting Program. Work may include literature reviews, developing background materials, researching technologies, and working with industry experts and government officials to develop a solid foundation for instituting national permit effluent limits and other conditions.

Subtask 2A: Update and Develop TDDs

The Contractor shall support the development of technical development documents (TDDs), in addition to the TDD identified in Task 3, including work on documents started and/or completed under previous work assignments. EPA expects these efforts to include technical memoranda (plus appendices with relevant data) describing the sources of information, key findings from those sources, technological capabilities and efficacy, cost information where relevant, and what conclusions, if any, can be drawn from this information. Once final, these TDDs shall be of sufficient quality to place in the docket and serve as part of the administrative record for decision-making. Subject areas which may be researched include, but will not be limited to:

- Monitoring approaches to assess vessel discharges
- Technical feasibility of using environmental acceptable lubricants on vessels, including the extent to which vessels have converted to these applications as a result of VGP/sVGP requirements.
- Use of exhaust gas cleaning systems to control sulfur emissions

- Other discharge types and treatment options as necessary.

Unless otherwise specified in the technical direction from the WACOR, within 1 week of receiving written technical direction to proceed on a TDD, the Contractor shall submit an annotated outline of the TDD and appendices identifying the information, conceptual approaches, and analyses, and scope of issues to be addressed in the technical memorandum. After approval by the WACOR, the Contractor shall prepare and submit a draft version of the TDD within 1 month and respond to EPA within 1 week and submit the final TDD within 2 weeks of receiving technical comments from the WACOR. EPA estimates that one TDD approximately 25-50 pages in length to be developed as part of this task.

Subtask 2B:

The Contractor shall support issuance/reissuance/modification of EPA's vessel general permits consistent with any technical direction provided by the WACOR and may include support to:

- Collect and compile information and develop analyses, studies, and other supporting documentation;
- Draft and format the permit, fact sheet, and other permit documents;
- Prepare documents necessary for Endangered Species Act (ESA) consultation;
- Economic and benefits analyses to examine the market and non-market impacts from permit issuance;
- Comment response categorization, entry into a comment response database, draft responses to comments, and prepare the response document; and
- Compile a permit docket.

This work shall build off existing permit documents and analyses prepared for previous permits taking into account any revisions to those permits as well as any changes in other considerations that affect such analyses.

Task 3: Ballast Water Management Evaluation *(Subtask 3a under Contract EP-C-12-021, WA 4-53)*

Managing the discharge of ballast water is a critical component of aquatic nuisance species control. This task includes completion of a technical development document, started under a previous work assignment assessing the state of ballast water management systems for vessels that transit into freshwater as well as marine ecosystems, including options available for both existing and new vessels. This assessment will investigate the full range of ballast water management system (BWMS) options, including activities such as best management practices, ballast water exchange, and treatment. Both on-ship and off-ship (e.g., on-shore) ballast water treatment systems options will be considered for the full range of domestic and international vessels covered under EPA's Vessel General Permit (VGP) as well as vessels less than 79 feet in length that may otherwise be covered under EPA's Small Vessel General Permit (sVGP). The report will provide BWMS options for both inland and marine vessels, including vessel activities in the Great Lakes (i.e., pre- and post-2009 Lakers and other vessels traversing the Great Lakes).
The assessment will consider biological effectiveness, cost, logistics, operations, regulatory

implications, safety, and any other areas that may affect ballast water management, including challenges presented by freshwater ecosystems. The assessment will look at both shipboard treatment and off-ship reception facilities to determine the availability and economic and logistical feasibility of these two options for the treatment of ballast water from the different categories/classes of vessels. Specifically, this assessment will consider if onshore treatment or other off-ship treatment, such as on a treatment barge, are reasonable, or preferred, alternatives to shipboard treatment for any universe of vessels covered under the VGP, including an assessment of the time necessary to implement such an approach if such is found to be a reasonable alternative. Unique characteristics of classes/categories of vessels will be considered in context with BWMS options to determine whether specific management/treatment options are "available" for these vessels considering the unique operational and design constraints of such vessels (e.g., large volumes of fresh cold water required and the short duration of trips for Lakers). This assessment will also evaluate Lakers built after 2009 since these vessels face many of the same challenges and constraints as pre-2009 Lakers. As appropriate, this assessment will evaluate a variety of environmental (e.g., temperature and salinity), operational (e.g., ballasting flow rates and holding times), and vessel design (e.g., ballast volume and unmanned barges) parameters to consider in determining applicable discharge requirements. The outline for this document is as follows:

1. Introduction
2. Ballast Water Regulations/Requirements to Prevent ANS Introduction and Propagation
3. Vessel Universe
4. Best Management Practices
5. Ballast Water Treatment Principles
6. Type Approved Ballast Water Management Systems
7. Ballast Water Management System Costs
8. Ballast Water Management System Performance
9. Compliance Monitoring
10. Assessment of Off-ship Ballast Water Treatment
11. Great Lakes Ballast Water Management Considerations
12. Ballast Water Alternatives

TASK 4: EVALUATE AQUATIC NUISANCE SPECIES IN THE GREAT LAKES *(Task 4 under Contract EP-C-12-021, WA 4-53)*

Under a previous work assignment, the Contractor supported the development of an EPA report entitled: "Analysis of Ballast Water Discharges into the Great Lakes from Overseas Vessels from 2010 to 2013" which provides information on ballast water discharges from ocean-going vessels entering the Great Lakes. Information in that report will be useful to assess aquatic nuisance species invasion risks into the Great Lakes by these vessels. Subsequent to that report, the Contractor supported the development of two additional reports, also under a previous work assignment, on (1) interlake transfers of ballast water within the Great Lakes and (2) contributions of ballast water into the Great Lakes from vessels coming from coastal/inland locations. These two reports will provide data and maps, as available, reflecting routes of the full range of vessels into and within the Great Lakes. These reports will also include data regarding the populations, ranges, and environmental characteristics of these ranges (salinity, temperature, etc.) of existing ANS in the Great Lakes. The final reports will describe how interlake transfers and coastal/inland transfers of

ballast water may occur and the routes/vessels/vectors that pose the highest risk for spreading existing ANS, or future ANS that may enter the Great Lakes. Under this Task, the Contractor will finalize these two reports, including responding to any comments from EPA and other selected reviewers as agreed to between the WACOR and the Contractor. Potential follow-up work will include using information identified in this report to develop a suite of strategies or tools to address inter-lake transfer of ANS.

Under this work assignment, the Contractor shall support other analyses of impacts of vessel activities on aquatic nuisance species in the Great Lakes and approaches for reducing these potential impacts. For purposes of this task, the Contractor shall assume preparation of 3 studies to include: (1) assessing how Lakers in the Great Lakes are adopting use of ballast water best management practices, (2) the effects of temperature and pH changes on aquatic nuisance species invasion potential, and (3) assessing options to curb the transport of Viral Hemorrhagic Septicemia (VHS) Virus in Laker ballast water.

Task 5: SUPPORT IMPLEMENTATION AND OUTREACH FOR THE VESSEL PERMITTING PROGRAM *(Task 8 under Contract EP-C-12-021, WA 4-53)*

Subtask 5a: Outreach

The Contractor shall support the development of materials for implementation and outreach of EPA's vessel permitting program. The Contractor shall prepare technical outreach materials such as 1-2 page factsheets, implementation/compliance checklists, and presentations on permit-specific information, and coordinate/facilitate external stakeholder meetings. The Contractor shall assume development of 2 short implementation fact sheets/checklists. One of those fact sheets may need to be translated into languages of the IMO (French, Spanish, Chinese, Russian, and/or Arabic). The Contractor shall also assume support for 2 online meetings and webinars as requested by the WACOR.

Subtask 5b: Vessel Discharge Summary Report

The Contractor shall develop a report that summarizes the characteristics and conditions of vessels and vessel practices, including those that enter freshwater ecosystems, based on information (i.e., from Notices of Intent, Notices of Termination, Vessel One-Time Reports, and Annual Reports) submitted to EPA under both the 2008 and 2013 VGPs. The report will also analyze vessels and vessel activities based on location to the extent possible, such as to identify the types of vessels operating on the Great Lakes and their operational and discharge characteristics.

DELIVERABLES REQUIRED AND SCHEDULE FOR COMPLETION OF TASKS

Task	**Deliverable**	**Due Date (to EPA) –** *unless specified otherwise through written technical direction from the WACOR*
0	Work plan and budget	- Within 30 days of receipt of WA
0	Progress/cost reports	- Monthly (Technical and Cost Progress Report)

Task	Deliverable	**Due Date (to EPA) –** *unless specified otherwise through written technical direction from the WACOR*
0	Response to requests/technical directive	- Within 5 business days unless specified otherwise
0	Problem report	- Immediately upon discovery of a problem
1	Great Lakes Accountability/Relevance Report	- 30 days after WACOR request
1	s-QAPP	- 10 days after notification by the WACOR that an s-QAPP is needed
1	Revisions to s-QAPP based on EPA feedback	- 7 days after receipt of WACOR feedback
1	Final s-QAPP for this WA	- 5 days after WACOR feedback
1	QA Progress Reports	- Monthly, as part of Progress/Cost Reports
2a	Technical Development Documents	- Kickoff meeting with EPA to discuss technical direction within 1 week of receipt of technical direction - Outline of product to be provided within 1 week of kickoff meeting - Draft of product within 1 month of approval of outline - Response to EPA comments on documents within 1 week of receipt of comments - Final deliverable within 2 weeks of receipt of EPA comments
2b	Briefing Materials, Targeted Assessment of Permit Conditions, Technical Memos, Economic and Benefit Analysis, Permit Docket Support, Comment Response Support, etc.	- Kickoff meeting with EPA to discuss technical direction within 1 week of receipt of technical direction - Outline of product to be provided within 1 week of kickoff meeting - Draft of product within 1 month of approval of outline - Response to EPA comments on documents within 1 week of receipt of comments - Final deliverable within 2 weeks of receipt of EPA comments

Task	Deliverable	**Due Date (to EPA) –** *unless specified otherwise through written technical direction from the WACOR*
3	Ballast Water Management Technical Development Document	- Draft and final documents based on technical direction from the WACOR
4	Final Great Lakes Interlake Ballast Water Transfer Report	- Revised report within timeframe established by WACOR after receipt of comments
4	Draft Great Lakes Coastal/Inland Ballast Water Transfer Report	- Draft report within timeframe established by WACOR - Revisions within 30 days after receipt of comments from WACOR
4	Final Great Lakes Coastal/Inland Ballast Water Transfer Report	- Within 15 days after receipt of comments from WACOR
4	Great Lakes Invasive Species Studies (3)	- Draft outline within 10 days of technical direction from WACOR - Draft report within timeframe specified by WACOR after acceptance of final outline - Revisions within timeframe specified by WACOR
5a	Online Meeting/Webinar Support	- Registration pages within 1 week after technical direction from WACOR. - Summary reports within 2 weeks after completion of meeting/webinar.
5a	Briefing Materials, Brochures, Fact Sheets, Other Outreach Materials	- Based on technical direction from the WACOR
5b	Draft VGP Summary Report Outline	- Based on technical direction from the WACOR
5b	Revised VGP Summary Report Outline	- 1 week after receipt of comments on Draft Report Outline from WACOR
5b	Draft VGP Summary Report	- 2 months after EPA acceptance of Revised Report Outline
5b	Revised VGP Summary Report	- 2 weeks after receipt of comments from EPA

CONTRACT PWS REFERENCE

Contract Number EP-C-16-003, Option Year 1.

Task 1 – Quality Assurance - PWS Section 4.0
Subtask 2a – Technical Development Documents – PWS Sections 3.8, 5.2, 8.0, and 10.0

Subtask 2b – Permit Revision Support - PWS Sections 3.5, 5.2, 10.0, and 11.0
Task 3 – Ballast Water Management Evaluation – PWS Sections 3.8, 5.2, 8.0 and 10.0
Task 4 – Evaluation Reports – PWS Sections 3.8, 8.0, and 10.0.
Subtask 5a – Outreach - PWS Sections 3.9, 6.0, and 7.0
Subtask 5b – Data Summary Report – PWS Sections 3.8, 8.0, and 10.0

ANTICIPATED TRAVEL REQUIREMENTS

All travel shall be approved in advance by the Contract-Level Contracting Officer's Representative (CL-COR) and shall be in accordance with the Contract.

ADDITIONAL REQUIREMENTS

Office direct costs (ODCs) for copying, postage/courier, supplies, computer usage, and graphics are allowed. No other ODCs are allowable as a direct charge to this delivery order without the prior written approval of the Contracting Officer.

Upon issuance of written technical direction, the Contractor shall submit for inspection of all work in progress at any time under this work assignment. The Contractor shall develop and maintain files supporting each task.

The Contractor shall contact the Contracting Officer (CO) and/or the CL-CCOR by telephone to discuss any problems that may adversely affect the work on this Work Assignment. Within five (5) calendar days the contractor shall follow the phone call with a brief written explanation of the problem, including any actions already taken, and/or recommended solutions to correct the problem. Written explanation shall be made available to the CO and the PO.

CONTRACTOR IDENTIFICATION

To avoid any perception that contractor personnel are EPA employees, the contractor shall assure that contractor personnel are clearly identified as independent contractors of EPA when attending meetings with outside parties or visiting field sites.

CONTROL REQUIREMENTS

Quality Assurance Project Plan (QAPP):

Publishing on the NPDES website does not require a QAPP, since the people who generate the data are responsible for the data's quality, and it is their responsibility to develop a QAPP, if one is needed for their primary data uses. The contractor shall provide source references for data that is published on the website.

Organizational Conflict of Interest:

The Contractor shall warrant that, to the best of the Contractor's knowledge and belief, there are no relevant facts or circumstances which could give rise to an organizational conflict of interest, as defined in FAR Subpart 9.5, or that the contractor has disclosed all such relevant information. See contract clause 1552.209-71 Organization of Conflict of Interest.

Notification of Conflicts of Interest Regarding Personnel:

The Contractor shall immediately notify the CL-COR and the Contracting Officer of (1) any actual or potential personal conflict of interest with regard to any of its employees working on or having access to information regarding this contract, or (2) any such conflicts concerning subcontractor employees or consultants working on or having access to information regarding the contract, when such conflicts have been reported to the Contractor. A personal conflict of interest is defined as a relationship of an employee, subcontractor employee, or consultant with an entity that may impair the objectivity of the employee, subcontractor employee, or consultant in performing the contract work. See Section H.4, contract clause EPAAR 1552.209-73 Notification of Conflict of Interest.

Enforcement Sensitive Information:

The contractor recognizes that contractor employees in performing tasks specified by this WA may have access to data/information, either provided by the government or first generated during contract performance, of enforcement sensitive nature which should not be released to the public without Environmental Protection Agency (EPA) approval. Enforcement sensitive refers to records or information compiled for law enforcement purposes (whether administrative, civil or criminal), the disclosure of which could reasonably be expected to interfere with the enforcement action. It is imperative that all contractor personnel, including but not limited to, subcontractor and consultant personnel assigned to work on this contract and/or WA, or with access to materials developed pursuant to such efforts, understand that this information is confidential and any disclosure or misuse of the information may result in prosecution to the fullest extent of the law. All contractor personnel are expected to exercise due diligence in safeguarding, handling or disposing of any such information.

Project Employee Confidentiality Agreement

The contractor agrees that the contractor employee will not disclose, either in whole or in part, to any entity external to the EPA, the Department of Justice, or the contractor, any information or data (as defined in FAR Section 27.401) provided by the government or first generated by the contractor under this contract, any site-specific cost information, or any enforcement strategy without first obtaining the written permission of the EPA CL-CPR. If a contractor, through an employee or otherwise, is subpoenaed to testify or produce documents, which could result in such disclosure, the contractor must provide immediate advance notification to the EPA so that the EPA can take action to prevent such disclosure. Such agreements shall be effective for the life and for a period of five (5) years after completion of the contract.

Handling of Confidential Business Information (CBI)

Contractor's access to TSCA CBI must comply with the procedures set forth in the TSCA CBI Security Manual. Likewise, access to FIFRA CBI shall follow the security procedures set forth in the FIFRA Information Security Manual.

To the extent that the work under this contract requires access to proprietary or confidential business or financial data of other companies, and as long as such data remains proprietary or confidential, the contractor shall protect such data from unauthorized use and disclosure.

All files or other information identified as Confidential Business Information (CBI) shall be treated as confidential and kept in a secure area with access limited to only contractor personnel directly involved in the case or special project assignment. The contractor, subcontractor, and consultant personnel are bound by the requirements and sanctions contained in their contracts with the EPA and in EPA's confidentiality regulations found at 40 CFR Part 2, Subpart B. The contractor subcontractors, and consultant must adhere to EPA-approved security plans which describes procedures to protect CBI, and are required to sign non-disclosure agreements before gaining access to CBI.

All official data, findings, and results of investigations and studies completed by the contractor shall be available for EPA and DOJ internal use only. The contractor shall not release any part of such data without the written direction of the WACOR.

Conference/Meeting Guidelines and Limitations

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The WACOR will then prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

PERFORMANCE SURVEILLANCE PLAN			
Performance Requirement	**Measurable Performance Standards**	**Surveillance Methods**	**Incentives/Disincentives**
Management and Communications: During the life of this work assignment, the Contractor shall notify EPA immediately of any issues that may impact the timeliness of deliverables of the problems associated with the development of deliverables.	The Contractor shall maintain contact with the WACOR throughout the performance of the work assignment. The contractor shall identify to the WACOR any delays with regard to deliverables not less than one week prior to the deliverable date that has been established in the work assignment or technical direction document. The contractor shall identify to the WACOR any issues or concerns that have a direct impact on project schedules within three (3) days of occurrence. The contractor shall provide options for EPA's consideration on resolving or mitigating the impacts identified.	WACOR and CL-COR (as necessary) will allocate the time needed to discuss and address all issues identified by the Contractor. The WACOR and CL-COR will document and maintain a complete record of the issues, agreements and outcome. The WACOR and CL-COR will review monthly progress reports for indicators of problems not previously mentioned. The WACOR will also monitor the timely receipt of deliverables. For those that are late without prior notice, the EPA will formally document to the Contracting Officer the late delivery.	If the contractor fails to implement corrective actions after EPA identifies and provided written documentation of performance issues, EPA will rate this performance category "unsatisfactory." If three or more the active work assignments for the period are rated unsatisfactory, EPA will rate the Business Relations category as unsatisfactory in the CPARS Contract Performance System.
Cost Management and Control: The Contractor shall perform all work in an efficient and cost effective manner, applying cost control measures where practical.	The Contractor shall monitor, track and accurately report level of effort, labor cost, other direct cost and fee expenditures to EPA through monthly progress reports and approved special reporting requirements. The Contractor shall assign appropriately leveled and skilled personnel to all tasks. The contractor should not exceed established work assignment ceilings and, in general, should expend dollars and hours at similar ratios. If either the expenditure of hours or dollars deviates significantly, the contractor shall provide an explanation in its Monthly Progress Report.	The CL-COR will routinely meet with the Contractor's Project Manager to discuss the work progress and contract and individual work assignment level expenditures. The CL-COR and WACOR shall review the Contractor's monthly progress reports and request the Work Assignment Contracting Officer's Representative to ensure that ceilings are not exceeded, that progress is being made, and that the contractor is effectively utilizing the LOE provided under the work assignment.	EPA will thoroughly review work assignment funding ceiling overruns to determine the contractor's ability to control the situation. If EPA determines that the contractor failed to control cost, the contractor will be rated "unsatisfactory" in this category. Multiple incidents of work assignment overrun that result in an overall cost overrun of greater than 4% of the approved total work assignment funding for the current contract period, will result in an unsatisfactory rating in the CPARS Contract Performance System.

Quality of Product/Services: The contractor shall ensure documents developed under this task order are quality products that are factual and based on sound science and engineering principles.	Products delivered under this work assignment must not contain any major factual errors. The analyses provided in each product shall be logical, consistent, and defensible.	The WACOR will review all documents delivered under this work assignment for content accuracy.	If EPA determines that the contractor's analyses is factually inaccurate or if significant technical errors are found in any documents produced by the contractor, EPA may determine that the cost associated with redoing the work shall be borne by the contractor. Multiple incidents of this nature under the contract will result in an unsatisfactory rating for Quality and Manage Control being reported to the CPARS Contract Performance System.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-23

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2018 Base Option Period Number 1	Vessel Discharge Management

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 12/07/2017 To 06/30/2018

Comments:
The purpose of this Amendment 2 is to remove the previously established funding ceiling as this work assignment is now fully funded at $409,289.00.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
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4										
5										

Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	07/01/2016 To 06/30/2018		
This Action:			
Total:			

Work Plan / Cost Estimate Approvals

Contractor WP Dated:		Cost/Fee	LOE:
Cumulative Approved:		Cost/Fee	LOE:

Work Assignment Manager Name: Jack Faulk (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-564-0768
	FAX Number:	
Project Officer Name: Tangela Cooper (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-0369
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Brad Heath (Signature) 12/7/2017 (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2352
	FAX Number:	

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-35

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2018 Base Option Period Number 1	Phase 2 Mystic River Watershed

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2017 To 06/30/2018

Comments:
The tasks performed under this work assignment and the development of the corresponding work plan shall be coordinated with the WACOR and/or AWACOR.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 07/01/2016 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Mark Voorhees (Signature) (Date)		Branch/Mail Code: Phone Number: 617-918-1537 FAX Number:
Project Officer Name: Tangela Cooper (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0369 FAX Number:
Other Agency Official Name (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature)	8/1/2017 (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP–C-16-003
WORK ASSIGNMENT 1-35

Title: Phase 2 Mystic River Watershed Eutrophication Analysis

Work Assignment Contracting Officer's Representative (WACOR):

Mark Voorhees
US Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Boston, Massachusetts
Mail Code: OEP 06-4

Phone: 617-918-1537
Fax: 617-918-0537
voorhees.mark@epa.gov

Alternate Work Assignment Contracting Officer's Representative (Alternate WACOR):

Erik Beck
US Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Boston, Massachusetts
Mail Code: OEP 06-1

Phone: 617-918-1606
Fax: 617-918-0606
beck.erik@epa.gov

Period of Performance: August 1, 2017 through June 30, 2018

Background: During 2016, EPA issued a work assignment (WA) to Environmental Research Group (ERG), WA 4-61 under Contract EP-C-012-021, to support EPA Region 1 in carrying out the initial phase (henceforth referred to as Phase 1) of the Mystic River Watershed eutrophication analysis. The focus of the Phase 1 analysis is to begin the process of developing analytical tools for EPA Region 1 to estimate phosphorus load reductions that are needed from the Mystic River watershed to attain applicable Massachusetts surface water quality standards (MA SWQS) related to cultural eutrophication. An additional objective of the Phase 1 project was to begin the process of collaborating with project partners, the Massachusetts Department of Environmental Protection (MassDEP), the Mystic River Watershed Association (MyRWA) and the Massachusetts Water Resource Authority (MWRA) towards developing watershed nutrient management strategies.

The Phase 1 project will be completed in September 2017 and is expected to provide much of the foundational groundwork for the tasks specified under WA 1-35. Therefore, this WA shall build upon and complete work that was begun during Phase 1. Specifically, Phase 1 will have selected the analytical modelling approaches to support achieving the project's primary goal of quantifying phosphorus load reductions needed for the Mystic River watershed. During Phase 1, an evaluation of modelling approaches was conducted that resulted in the selection of a hybrid watershed modelling approach that will apply EPA Region 1's Opti-Tool to calculate land-use based loads with empirical based spreadsheet models for watershed routing/attenuation and the Bathtub model for receiving water quality modelling at two critical locations covering three waterbody segments in the Mystic River system. Phase 1 documentation describes the process of considering numerous factors such as data availability and project resources and how the selected modelling approaches for the Mystic River watershed aligns with primary project objectives of supporting watershed management actions.

Phase 1 and the focus of this WA (Phase 2) is intended to support elements of EPA's TMDL Vision process by providing technical support for watershed restoration efforts in the Mystic River watershed. This project provides an opportunity to target multiple TMDL Vision Goals: developing an "Alternative" to a TMDL, "Engaging" with the state and watershed group, and "Integrating" a plan to address multiple Clean Water Act programs, such as point and non-point water pollution, and other EPA programs such as Superfund and Environmental Justice. Within the Mystic River Watershed, the Massachusetts Department of Environmental Protection (MassDEP) is already engaged in this process through two pilot studies applying their newly developed Watershed Based Planning Tool. The work described below would further support that initiative through assisting in assessing the validity and value of the results from the Watershed Based Planning Tool as a TMDL Alternative.

The Mystic River Watershed is a 76 square mile watershed located in the Greater Boston, Massachusetts area that encompasses all of, or portions of 22 urban and suburban communities. The watershed faces multiple water quality impacts related to cultural eutrophication including excessive algal growth, harmful cyanobacteria blooms and excessive native and invasive macrophyte growth. Sources of pollutants from the watershed include stormwater runoff, Combined Sewer Overflows (CSO's), Sanitary Sewer Overflows (SSO's), non-point runoff, toxic substance contamination and three recognized Superfund sites. The watershed suffers from many legacy pollutants as well as present day pollutant loadings. Several environmental justice communities are located within the watershed and there is high development pressure throughout the entire watershed.

The Mystic River is listed as a Category 5 water body on the Massachusetts 2014 303(d) List of Impaired Waters for phosphorus, Arsenic, Chlordane, Chlorophyll, DDT, dissolved oxygen, *E. coli*, PCB in Fish, Secchi depth, and sediment bio-chronic Toxicity. Due to the multiple stressors present in this watershed, development of a Total Maximum Daily Load (TMDL) to address all of the pollutants would be a lengthy and complicated task given available resources. However, this is an excellent opportunity to begin to address impairments through elements of the recent EPA/State TMDL Vision process by focusing on nutrient management. Through other regional efforts, the Region has determined that effective nutrient management will likely go a long way towards addressing sources of other impairments (e.g., bacteria, sediment bound contaminants).

Moreover, MyRWA is actively engaged in collecting water quality data and promoting resource protection. MyRWA has completed over sixteen years of water quality monitoring as part of a baseline bacteria, nutrient and aesthetics monitoring program and is currently working on a supplemental focused monitoring program to support developing estimates of nutrient loading to the Mystic River through the use of flow gages and auto-samplers. MyRWA, in conjunction with MassDEP, are ideal partners to engage with to address water quality impairments. Planning meetings have already occurred annually to update all partners on progress and strategically plan next steps.

Stormwater runoff from developed areas of the Mystic River watershed is a dominant source of nutrient pollutant loading to the watershed's surface waters. Therefore, this project provides an excellent opportunity to pilot-test a user-friendly stormwater management optimization tool (Opti-Tool) developed by the Region. The Opti-Tool provides a means to evaluate options for determining the best mix of structural stormwater controls (SWCs) in a particular geographic area to achieve quantitative water resource goals. The Opti-tool incorporates scientifically robust model generated long term time-series of hourly runoff volume and nutrient concentrations, as well as regionally calibrated model input SWC performance parameters for total phosphorus (TP), total nitrogen (TN), total suspended solids (TSS), and Zinc (Zn). This project in the Mystic River Watershed also provides an opportunity to collaborate with local stormwater management practitioners to advance knowledge on conducting comprehensive stormwater management planning in the regional area.

Lastly, The Mystic River Watershed was designated as an Urban Waters Partnership Location in 2013. The Partnership works to improve coordination and focus among federal agencies on problems in the watershed. The focus of efforts in the Mystic River Watershed include: urban water restoration and monitoring, water quality awareness, scientific research, and environmental education. The partners are USGS, US Forest Service, USACOE, National Park Service, HUD, and FEMA. Work under this task order may have the potential for future collaboration.

This work assignment will support the following key areas of focus for EPA: urban stormwater, environmental justice, nutrients, and elements of the TMDL Vision process.

Purpose and Objective:

The purpose of this WA is to conduct Phase 2 of the Mystic River watershed eutrophication analysis. Phase 2 will further support EPA Region 1 in finalizing the development and calibration of modelling approaches selected during Phase 1 for estimating watershed phosphorus loads and eutrophication-related water quality responses at three critical waterbody segments located within the Mystic River watershed. The calibrated water quality models will be used to set phosphorus load reduction targets for the contributing watershed areas to reduce the frequency and severity of algal blooms and eventually attain applicable MA SWQS.

Determining needed load reductions and beginning the process of developing watershed based phosphorus load reduction strategies will help to engage watershed communities in the process of becoming more aware of their role for instituting controls, practices and programs designed to mitigate the effects of uncontrolled stormwater runoff and other sources of nutrients (e.g., illicit discharges) on the water quality of the Mystic River. Increasing awareness will help to

encourage more immediate proactive engagement by communities to take advantage of opportunities to incorporate needed controls into redevelopment and urban renewal type projects, as well as developing and adopting more protective local ordinances. Additionally, EPA Region 1 intends to use this WA to support building MyRWA's capacity to apply the models developed under this WA as part of an anticipated future iterative management process for the Mystic River watershed.

Moreover, Phase 1 and the focus of Phase 2 is intended to support elements of EPA's TMDL Vision process by providing technical support for watershed restoration efforts in the Mystic River watershed. This project provides an opportunity to target multiple TMDL Vision Goals: developing an "Alternative" to a TMDL, "Engaging" with the state and watershed group, and "Integrating" a plan to address multiple Clean Water Act programs, such as point and non-point water pollution, and other EPA programs such as Superfund and Environmental Justice. Within the Mystic River Watershed, the Massachusetts Department of Environmental Protection (MassDEP) is already engaged in this process through two pilot studies applying their newly developed Watershed Based Planning Tool. The work described below would further support that initiative through assisting in assessing the validity and value of the results from the Watershed Based Planning Tool as a TMDL Alternative.

The Agency requires technical expertise to support the following project, which is designed to accomplish these goals and objectives in the New England States.

Scope of Work

Task 0 - Project Management

A) Develop Work Plan: The Contractor shall prepare a Work Plan for EPA's approval. The Work Plan shall describe how the Contractor shall accomplish each of the tasks. The Contractor shall provide qualified staff to perform the work and a Project Manager to oversee all project activities.

B) Project Coordination: The Contractor will work closely with the WACOR and the existing Technical Advisory Committee (TAC). The Contractor will consult the WACOR for major technical decisions, especially during the Phase 2 project kickoff and the final project delivery meetings. It will be the responsibility of the WACOR to provide the contractor input on behalf of the TAC in a timely manner consistent with the deliverable due dates.

C) Reporting: The contractor shall provide electronic copies of the monthly progress reports to the WACOR and CL-COR. Each progress report shall describe the technical work and expenditures for the same time period as the corresponding invoice. The reports shall list by task the amount of work completed and include a table of hours by personnel for each task. The reports also shall identify any problems or difficulties.

Deliverables:

A) The Contractor shall submit a Work Plan in accordance with contract requirements **after the date of issuance of WA 1-35**.
B) The Contractor shall maintain communication with the WACOR and shall host monthly conference calls throughout the project.
C) The Contractor shall submit monthly progress reports in accordance with contract requirements.

Task 1 – Prepare Quality Assurance Project Plan

EPA policy requires that an approved Quality Assurance Project Plan (QAPP) be in place for work that involves the collection, generation, evaluation, analysis or use of primary environmental data. The QAPP defines and documents how specific data generation and collection activities shall be planned, implemented, and assessed during a particular project. To accomplish some of the work assignment objectives, it will be necessary for the Contractor to use existing environmental information and data for the development of the watershed nutrient loading estimates and the development and calibration of the water quality models for the three critical waterbody segments in the Mystic River system. Therefore, the Contractor shall develop a QAPP for all activities that involve assembling, reviewing and using existing environmental information and data, as well as developing and calibrating the watershed phosphorus loading and receiving water quality models for the Mystic River watershed.

Deliverables: The Contractor shall provide a draft QAPP for EPA review **at the time of submitting the Work Plan.** The Contractor shall submit a final QAPP **within 5 business days after receiving comments on the draft QAPP from the WACOR.**

Task 2: Participate in Project Technical Steering Committee

The Contractor shall participate on the Mystic River Eutrophication Technical Steering Committee (TSC) that was convened during Phase 1. TSC meetings will continue to be held during Phase 2 of the project to provide a forum for key project stakeholders to review and discuss progress at regular intervals, share expertise and insights and deliberate interim project decision points (e.g., selection of period of interest for conducting phosphorus load reduction analysis and are models sufficiently calibrated to achieve project goals?) The Contractor's participation in the TSC shall have the following primary two functions:

1) Provide technical expert advice/guidance on watershed phosphorus loading and water quality model evaluations, watershed stormwater management opportunities and options for managing excessive growth of aquatic macrophyte vegetation in slow moving impounded water bodies; and

2) Facilitate and participate in TSC meetings to present project progress/findings and important underlying information needed to support a well-informed decision making process during the project.

Deliverables: The Contractor shall attend up to three TSC meetings for Phase 2 of the project.

The Contractor shall present project progress and provide the necessary technical expertise to achieve the TSCs meeting objectives that will be discussed beforehand with the WACOR. It can be assumed that the TSC meetings would be approximately every three months starting in October 2017 and ending in June 2018.

Task 3 – Finalize Watershed Phosphorus Loading Estimates

The Contractor shall finalize development of average annual phosphorus load estimates for the watershed area sub-basins tributary to the freshwater portion of the Mystic River. This work shall build on the analyses being conducted under WA 4-61 ERG Contract EP-C-021-012 which involves delineation of sub-basins, watershed spatial data analyses, modelling approach selection, development of annual phosphorus load estimates using the Opti-Tool Hydrological Response Unit (HRU) models and consideration of attenuation factors within the watershed.

Under this task, the Contractor shall calibrate models for estimating annual watershed phosphorus loads delivered to the three critical waterbody segments in the Mystic River system, (1) Lower Basin; (2) Upper lobe of Upper Mystic Lake; and (3) Main body of Upper Mystic Lake, and to the seven major lakes and ponds in the watershed that are currently not attaining MA SWQS due to excessive nutrient loadings (Blacks Nook Pond (MA71005), Cambridge; Horn Pond (MA71019), Woburn; Judkins Pond (MA71021), Winchester; Mill Pond (MA71031), Winchester; Spy Pond (MA71040), Arlington; Wedge Pond (MA71045), Winchester and Winter Pond (MA71047), Winchester).

The calibration process will involve using available water quality and flow gaging data from the Mystic River system, identified in WA 4-61, to inform developing best estimates of watershed routing processes, directly connected impervious cover, and if necessary Opti-Tool loading rate estimates. The modeling processes used in Opti-Tool for calculating loading rates have already undergone a rigorous calibration process using extensive storm water quality data and relevant studies applicable to the New England region. As part of the calibration process, the Contractor shall estimate the annual phosphorus load captured by each of the seven major lakes and ponds using a readily available empirical approach that requires only estimates of lake/pond hydraulic retention time and volume. The Contractor shall consult with the WACOR on the approach to be used to estimate the phosphorus load captured by the lakes/ponds prior to developing the estimates.

The Contractor shall prepare a technical memorandum describing the modelling approach and calibration process used to develop the watershed phosphorus load estimates. The memorandum shall also provide a summary of the results and an assessment of the calibration results in accordance with the QAPP. The memorandum should provide sufficient detail to allow an independent reviewer to evaluate the modelling approach and results of the calibration process. EPA anticipates that the watershed models to be developed under 4-61 will be represented in spreadsheets that provide all watershed factors used to calculate phosphorus load estimates and account for routing and or attenuation processes in the watershed areas. EPA expects that the methodology applied to calculate the delivered phosphorus load in spreadsheet models will be clearly understandable to independent reviewers.

Deliverables: The Contractor shall submit to the WACOR: 1) A draft technical memorandum describing the watershed phosphorus loading modelling approach and the calibration process/results: 2), Opti-Tool input files; and 3) All spreadsheet models (compatible with Excel) for all sub-basins, the three critical Mystic River waterbody segments and the seven major lakes/ponds **by November 15, 2017**.

The Contractor shall submit to the WACOR: 1) A final technical memorandum describing the watershed phosphorus loading modelling approach and the calibration process/results; 2) final Opti-Tool input files; and 3) all final spreadsheet models (compatible with Excel) for all sub-basins, the three critical Mystic River waterbody segments and the seven major lakes/ponds **by February 15, 2018**.

Task 4 - Develop and Calibrate Bathtub Models for the Mystic River Watershed

The Contractor shall develop and calibrate Bathtub models for the three critical waterbody segments in the Mystic River system: 1) Lower Basin; 2) Upper lobe of Upper Mystic Lake; and 3) Main body of the Upper Mystic Lake. The Bathtub models shall be applied at these locations at appropriate spatial scales for determining annual phosphorus loading capacities and reductions in annual watershed phosphorus loadings that are needed to attain eutrophication related MA SWQS. This task is comprised of the two following subtasks:

A: Develop Bathtub Modelling Approach: The Contractor shall use best available morphological, water quality and hydrologic data to develop the Bathtub models for these three segments. EPA has recently collected morphological data in the Lower Basin and the Upper Mystic Lake and expects to provide these data to the Contractor by November of 2017. The Contractor shall prepare a technical memorandum that describes the Contractor's proposed approach to develop and calibrate the Bathtub models including model segmentation, calibration period, and identification of all datasets and watershed phosphorus loading estimates (Task 3) to be used in the calibration process for the models.

B: Calibrate Bathtub Models: Upon receiving comments from the WACOR on the modelling approach technical memorandum (the WACOR will be responsible for coordinating reviews from the TSC), the Contractor shall develop and calibrate the Bathtub models and prepare a technical memorandum that describes the modelling approaches and presents results of the calibration process including an assessment of the calibration results for each of the Bathtub models. The memorandum should provide sufficient detail to allow an independent reviewer to evaluate the modelling approaches and results of the calibration process.

Deliverables:

A) The Contractor shall submit to the WACOR a technical memorandum that describes the Contractor's proposed approach to develop and calibrate the Bathtub models **by December 15, 2017.**
B) The Contractor shall submit to the WACOR a draft technical memorandum that describes the modelling approaches and results of the calibration process for each of the Bathtub models **by February 15, 2017.** The contractor shall address comments received on the draft technical

memorandum and submit a final technical memorandum **within 15 days of receiving comments from the WACOR.**

Task 5 – Conduct Watershed Phosphorus Load Reduction Analysis

The Contractor shall use the calibrated watershed loading and receiving water Bathtub models developed under Tasks 3 and 4 to estimate watershed based annual phosphorus load reductions that are needed to attain eutrophication-related MA SWQS in three critical waterbody segments: 1) Lower Basin; 2) Upper lobe of Upper Mystic Lake; and 3) Main body of Upper Mystic Lake. The Contractor shall use the nutrient related water quality endpoints selected during Phase 1 of the project (e.g., seasonal average chlorophyll *a*, total phosphorus concentrations and percent macrophyte coverage) to conduct the analyses. This work shall be comprised of the following subtasks:

A: Identify Critical Period of Interest for Phosphorus Load Reduction Analysis: The critical period of interest will be the climatic period for which the Mystic River watershed phosphorus load reduction analysis shall be conducted. This period should be representative of critical climatic conditions related to the water quality endpoints selected for this project and that are likely to lead to excessive algal growth and cyanobacteria blooms in the Mystic River system. A multiple year period (e.g., 5 years) may be needed to capture varying critical conditions that could lead critical eutrophication-related conditions in the Mystic River system. The contractor shall evaluate climatic conditions in the Mystic River watershed (year 2000 to present) and recommend to the WACOR in a brief technical memorandum a critical period of interest to be used for the phosphorus load reduction analysis for the Mystic River watershed.

B: Develop Watershed Phosphorus Loading Estimates for Critical Period of Interest: Upon approval of the critical period of interest from the WACOR, the Contractor shall apply the calibrated watershed phosphorus loading models developed under Task 3 to estimate annual phosphorus loads and flows delivered to the three critical Mystic River waterbody segments for which Bathtub models have been developed under Task 4. Should the critical period of interest differ from the period of time represented in the calibration process then it may be necessary for the Contractor to recalculate HRU annual phosphorus load rates using Opti-Tool and the annual phosphorus load captured for each of the seven major lakes/ponds. Phosphorus loads and flow volumes from the watershed models shall be used as inputs to Bathtub models.

The Contractor shall develop annual phosphorus load delivery estimates for each sub-basin, the three critical Mystic River waterbody segments and each of the seven major lakes and ponds for the critical period of interest. The estimates shall be provided in the spreadsheet models that provide all watershed factors used to calculate loads and represent watershed routing and/or attenuation. The final phosphorus load estimates for the seven major lakes/ponds shall also include the estimated annual phosphorus load captured by each lake/pond for the critical period of interest.

C: Apply Bathtub Models to Estimate Watershed Phosphorus Load Reductions: The Contractor shall apply the calibrated Bathtub models for the critical period of interest to determine the allowable phosphorus loading capacities of the three critical Mystic River waterbody segments using the nutrient related water quality endpoints selected during Phase1 of the project. The

Bathtub models shall also be used to estimate the corresponding average annual phosphorus load reductions that are needed from the contributing watershed areas to attain eutrophication-related MA SWQS using the selected endpoints. The Contractor shall prepare a technical memorandum that describes and presents the results of the phosphorus load reduction analysis.

Deliverables:

A) The Contractor shall submit to the WACOR a technical memorandum summarizing the results of climate/water quality analysis and a recommendation for the critical period of interest to be used in the phosphorus load reduction analysis **by March 15, 2018.**
B) The Contractor shall submit to the WACOR all final Opti-Tool input files and spreadsheet models (compatible with Excel) for all sub-basins, the three critical Mystic River waterbody segments and the seven major lakes/ponds for the critical period of interest **by April 15, 2018**.
C) The Contractor shall submit to the WACOR a draft technical memorandum that describes and presents the results of the phosphorus load reduction analysis **by April 15, 2018**.

Task 6 – Develop Broad-Based Nutrient Stormwater Management Strategies for Mystic River Watershed using Opti-Tool

The Contractor shall apply Opti-tool to the Mystic River Watershed to develop broad-based stormwater management strategies to identify the most cost effective management approaches for achieving a wide range of nutrient load reductions including the load reductions that will be needed to attain SW WQS. EPA Region 1's primary goal for this task is to develop information that can be shared with watershed communities to help them better understand the range of stormwater management opportunities that exist within their portions of the watershed.

A) Develop Scope: The Contractor shall collaborate with the WACOR and the TSC to develop a scope for applying the Opti-Tool in the Mystic River watershed and to provide information about stormwater management opportunities that exist within the watershed communities; particularly opportunities that may arise during future redevelopment and urban renewal projects. The Contractor shall consider using EPA Region 1's Opti-Tool case study done for the Buzzards Bay Region as a potential starting point for developing the scope of this Task's analysis

B) Conduct Opti-Tool Analysis: EPA expects that the Contractor shall use the results of the geographic watershed spatial data analyses conducted during Phase 1 to identify watershed features (e.g., impervious cover, land-use, soils, slopes, depths to groundwater, etc.) and corresponding stormwater management categories to broadly apply Opti-Tool to the Mystic River watershed for the critical period of interest. EPA expects that Opti-Tool analysis results will help to further identify optimal stormwater control (SWC) categories and sizing approaches that could increase both the technical and economic feasibilities of retrofitting needed SWCs into developed watershed areas. The Contractor shall develop a draft technical memorandum describing the Opti-Tool analysis, its results and include recommendations on broad-based stormwater management opportunities that watershed communities can begin to consider. The contractor shall provide an accounting of the stormwater management categories and corresponding watershed features by municipality for all sub-basins, the three critical Mystic River waterbody segments and the seven major lakes/ponds sub-basins in spreadsheets.

Deliverables:

A) The Contractor shall submit to the WACOR a draft scope for the Mystic River watershed Opti-Tool analysis **by March 15, 2018.**
B) The Contractor shall submit to the WACOR: 1) A draft technical memorandum on the Opti-Tool analysis **by May 1, 2015**; 2) A final technical memorandum of the Mystic River watershed Opti-Tool analysis **within 15 days of receiving comments from the WACOR;** and 3) All final Opti-Tool input files used in the Task 6 analysis and spreadsheets (compatible with Excel) that provide an accounting of stormwater management categories and corresponding watershed features by municipality for each sub-basin, the three critical Mystic River waterbody segments and the seven major lakes/ponds for the critical period of interest **by June 1, 2018**.

Task 7 – Independent Technical Reviews

The Contractor shall select two experts in the fields of limnology and nutrient modelling to conduct an independent expert review of the nutrient modelling efforts and nutrient and eutrophication response variable endpoints that will be completed for this project. The goal of this review is to provide an independent assessment of the work that has been completed and to provide constructive feedback to EPA, the TSC and the Contractor's project team during the project and to make recommendations on any future improvements to the modelling work, nutrient and eutrophication response variable endpoints as well as implementation strategies to assist MyRWA and Mystic River watershed communities as they work to reduce nutrient loading in the watershed. The two independent reviewers shall prepare final summaries of their reviews and include an overall evaluation of the modelling tools for supporting nutrient management actions in the Mystic River watershed. The Contractor shall invite the independent technical reviewers to present their findings at the final project TSC meeting.

Deliverables: The Contractor shall submit to the WACOR the written summaries of the reviews conducted by the independent technical reviewers of the Mystic River nutrient modelling work **by May 15, 2018** and the reviewers shall present their findings **at the final project TSC meeting** (date not yet determined).

Task 8 – Public Outreach Meeting

The Contractor shall attend and lead a public outreach meeting for all Mystic River watershed communities and stakeholders. The goal of this public meeting will be to share the results of this project and make recommendations on what the communities and stakeholders can do to implement the nutrient reduction recommendations resulting from this project. The Contractor shall structure the meeting to include time for a presentation on the project background, results and future implementation recommendations, as well as adequate time for public comment and questions and answers. The Contractor shall not be responsible for arranging the logistics (e.g., meeting place) for the meeting.

Deliverables: The Contractor shall and attend and lead a public outreach meeting for the Mystic River watershed by **June 30, 2018**.

Task 9 – Final Report

The Contractor will prepare a final report that summarizes the background, results and recommendations from this project. EPA envisions that much of the written materials provided for the various project Task technical memorandums can be readily incorporated into the final report. The Contractor shall also provide in the main body of the final report, or as appendices to the final report, or as electronic files (in an EPA compatible format) the following information: Data used for nutrient and eutrophication response variable endpoints; Data used for modeling; Model calibration inputs; Model results; Model spreadsheets; Geographic Information System (GIS) shapefiles and raster files and GIS analyses.

Deliverables: The Contractor shall submit to the WACOR: A draft final report for the Mystic River Watershed Eutrophication Analysis **by June 1, 2018;** and 2) A final Report **within 15 days of receiving comments from the WACOR but no later than June 30, 2018.**

Deliverables Required and Schedule for Completion of Tasks

Task	Item Required	Due Date	Number of Copies and Format Requirements
0	A) Work Plan B) Monthly conference calls C) Monthly progress reports	A) In accordance with contract requirements B) Every Month C) In accordance with contract requirements	A) 1 in electronic format B) Conference calls C) 1 in electronic format
1	A) Draft Quality Assurance Project Plan (QAPP) B) Final QAPP	A) With work plan B) Within 5 Business days of receiving comments from WACOR.	A)1 in electronic format B) 1 in electronic format
2	Attend TSC Meetings	Between October 1, 2017 and June 30, 2018	In -person meeting
3.	Draft Technical Memorandum, spreadsheet models, and Opti-Tool input files Final Technical Memorandum, spreadsheet models, and Opti-Tool input files	November 15, 2017 February 15, 2018	1 in electronic format 1 in electronic format
4	A) Technical Memorandum on Bathtub Modelling Approach B1) Draft Bathtub Modelling Technical Memorandum B2) Final Bathtub Modelling Technical Memorandum	A) December 15, 2017 B1) February 15, 2018 B2) Within 15 days of receiving comments from WACOR	A) 1 in electronic format B1) 1 in electronic format B2) 1 in electronic format
5	A) Technical Memorandum on Critical Period Analysis	A) March 15, 2018	A) 1 each in electronic format

	B) Final Opti-Tool Input Files and Spreadsheet Models C) Draft Technical Memorandum on Phosphorus Load Reduction Analysis	B) April 15, 2018 C) April 15, 2018	B) 1 each in electronic format C) 1 each in electronic format
6	A) Scope for Opti-Tool Analysis B1) Draft Technical Memorandum on Phosphorus Load Reduction Analysis B2) Final Technical Memorandum, Opti-Tool Input Files, and Accompanying Spreadsheets	A) March 15, 2018 B1) May 1, 2018 B2) Within 15 days of receiving comments form WACOR	A) 1 each in electronic format B1) 1 each in electronic format B2) 1 each in electronic format
7	Review Summaries by Independent Technical Reviewers Present Findings at TSC Meeting	May 15, 2018 To be determined but no later than June 30, 2018	1 each in electronic format In-person
8	Public Outreach Meeting	To be determined but no later than June 30, 2018	In-person
9	Draft Final Report Final Report	June 1, 2018 Within 15 days of receiving comments from WACOR but no later than June 30, 2018	1 each in electronic format 1 each in electronic format

Estimated Level of Effort: EPA **estimates 966 hours** will be required to complete all tasks.

Anticipated Travel Requirements: Travel for up to 3 persons on one day to Boston, Massachusetts to attend public outreach meeting. Technical directions will be issued by the WACOR within 2 weeks of the scheduled trip to clarify the specific travel dates and the number of persons required for the following tasks:

Task	**Travel Destination /Purpose**	**Travel Destination /Purpose**
8	Public Outreach Meeting	Boston MA Area – lead meeting and give presentations

Additional Requirements: Office direct costs (ODCs) for copying, postage/courier, supplies, computer usage, and graphics are allowed.

Upon issuance of written technical direction, the Contractor shall submit for inspection of all work in progress at any time under this work assignment. The Contractor shall develop and maintain files supporting each task.

The Contractor shall contact the WACOR and/or the Contract Level Contracting Officer's Representative (CL-COR) by telephone to discuss any problems that may adversely affect the work on this Work Assignment. Within five (5) calendar days the Contractor shall follow the phone call with a brief written explanation of the problem, including any actions already taken, and/or recommended solutions to correct the problem. Written explanation shall be made available to the WACOR and the CL-COR.

Contractor Identification: To avoid any perception that Contractor personnel are EPA employees, the Contractor shall assure that Contractor personnel are clearly identified as independent Contractors of EPA when attending meetings with outside parties or visiting field sites.

Organizational Conflict of Interest: The Contractor shall warrant that, to the best of the Contractor's knowledge and belief, there are no relevant facts or circumstances which could give rise to an organizational conflict of interest, as defined in FAR Subpart 9.5, or that the Contractor has disclosed all such relevant information. See contract clause 1552.209-71 Organization of Conflict of Interest.

Notification of Conflicts of Interest Regarding Personnel: The Contractor shall immediately notify the CL-COR and the Contracting Officer of (1) any actual or potential personal conflict of interest with regard to any of its employees working on or having access to information regarding this contract, or (2) any such conflicts concerning subcontractor employees or consultants working on or having access to information regarding the contract, when such conflicts have been reported to the Contractor. A personal conflict of interest is defined as a relationship of an employee, subcontractor employee, or consultant with an entity that may impair the objectivity of the employee, subcontractor employee, or consultant in performing the contract work. See Section H.4, contract clause EPAAR 1552.209-73 Notification of Conflict of Interest.

Project Employee Confidentiality Agreement: The Contractor agrees that the Contractor employee will not disclose, either in whole or in part, to any entity external to the EPA or the Contractor, any information or data (as defined in FAR Section 27.401) provided by the government or first generated by the Contractor under this contract or any site-specific cost information without first obtaining the written permission of the CL-COR.

Conference/Meeting Guidelines and Limitations: The Contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The WACOR will then prepare approval internal paperwork for the event and will advise the Contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-36

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2018 Base Option Period Number 1	Reach Address Database/WATERS

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (*Max 2*): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 07/01/2016 To 06/30/2018 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee — LOE:

Cumulative Approved: — Cost/Fee — LOE:

Work Assignment Manager Name: Pravin Rana (Signature) (Date)		Branch/Mail Code: Phone Number: 202-564-1909 FAX Number:
Project Officer Name: Tangela Cooper (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0369 FAX Number:
Other Agency Official Name (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	7/1/2017	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-16-003
WORK ASSIGNMENT 1-36

TITLE: Reach Address Database/Watershed Assessment, Tracking, Assessment and Environmental Results (WATERS) Data System Support

WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (WACOR):

COR Name: Pravin Rana **Phone:** 202-564-1909 **Fax:** 202-564-0500 rana.pravin@epa.gov	**USPS Mailing Address** 1201 Pennsylvania Ave, N.W., Washington DC, 20460 MC4101M	**Courier Address** 1201 Pennsylvania Ave, N.W., Washington DC, 20460 2416F WJCE

PERIOD OF PERFORMANCE: From July 1, 2017 – June 30, 2018

ANTICIPATED LEVEL OF EFFORT (LOE) Hours: 2,078

BACKGROUND: The Reach Address Database (RAD) Project was initiated in 2001 to enable the Office of Water to support the Watershed Assessment, Tracking, and Environmental Results (WATERS) geo-spatial architectural framework. RAD has two core components:

- NHDPlus, an electronic map of streams, rivers, lakes and other water features including other attributes such as terrain elevations, watershed boundaries, and stream network information. NHDPlus supports geo-spatial analysis such as creating maps and analyzing relationships among watershed features.

- RAD, which stores the addresses of features, which include water quality monitoring stations, wastewater treatment plants, impaired waters, and other physical entities of interest for water quality and watershed-based analysis. Each feature has a unique stream address (analogous to a house or a building on a street map) and a Program Identifier. For example, a water quality monitoring station from EPA's STORET database will have the stream address and the monitoring station id. This allows users to connect the water quality station's location on NHDPlus with detailed station information such as water quality sample date, sample time, sample identifier, and sample value.

The Watershed Assessment, Tracking, and Environmental Results (WATERS) architecture is based on RAD's ability to create geo-spatial relationships among Office of Water features. WATERS has been used by users to create maps; analyze watershed data; and develop geo-spatial applications.

RAD/WATERS geo-spatial framework is being considered by the Open Water Data Initiative (OWDI) as a model to geo-spatially integrate other Federal Agency Data.

PURPOSE AND OBJECTIVE

The purpose of this work assignment is to provide operations and maintenance and design enhancements as necessary for RAD/WATERS.

SCOPE OF WORK

TASK 0: WORK ASSIGNMENT MANAGEMENT

The contractor shall routinely provide performance updates, estimated costs, level of effort (LOE) and key deliverables upon request from EPA's Work Assignment Manager (WACOR) and/or Alternative WACOR for all ongoing tasks. Regularly scheduled bi-weekly conference calls and in-person meetings, as needed, will be coordinated between EPA's WACOR and the contractor to discuss the work assignment and progress of tasks. In addition, the contractor shall provide a monthly progress report that includes implementation plan(s); issues encountered and lessons learned regarding the progress of all tasks, the tracking of expenditures, and any other administrative activities, as requested.

Deliverables: The contractor shall provide the following work assignment management deliverables.

- Monthly Progress Report with expenditures.

TASK 1: RAD/WATERS Database Enhancements and Operations and Maintenance

The contractor shall provide data management support for datasets listed in the following section that support WATERS. Datasets are stored in an Enterprise Oracle database using the Oracle Spatial format and registered using ESRI's Spatial Database Engine (SDE). Datasets will need to be routinely exported from the database into ESRI's ShapeFile and File Geodatabase formats to support ArcGIS based Server mapping services. The contractor shall continue to maintain and update associated EDG (metadata) and GeoPlatform entries associated with WATERS data included in the scope of this project.

The contractor shall track data management activities using separate high-level charge codes. The high-level charge code categories are noted below.

<u>Datasets</u>

- RAD Events (charge code level)
    - Includes events submitted via the NHDEvent dataflow, 303(d) creation from Integrated Reporting (IR) States and TMDL generation from the 303(d) dataset.
    - Also includes datasets such as automated STORET & NPDES and BEACH processing.

- Core Data (charge code level)
    - National Hydrography Dataset Plus (NHDPlus) including
        - NHDPlus Smoothed Catchments
        - Watershed Boundary Dataset (WBD)

- Auxiliary Data (charge code level)
    - Census/TIGER
    - EPA Administrative regions layer
    - Select National Atlas layers

- Cyclical Data (charge code level)
    - Total Waters Rollup
    - STHUC summary tables

Deliverables:

- Monthly RAD event processing results loaded into all INDUS Developments (3) and NCC WATERS instances (3) and associated mapping services updated.
  Core, Auxiliary and Cyclical Data Processing/Management

Subtask 1A: OWDI Technical Support

The contractor shall continue to participate in the Department of Interior's Open Water Data Integration (OWDI) work. This work entails developing proofs of concept, deploying RAD data and services to DOI's hosting environments and evaluation of open source based solutions.

Deliverables: Deliverables will be specified based on Technical Direction. For costing purposes, include historical costs to support OWDI.

Subtask 1B: Proofs of Concepts

Technology and EPA hosting options continue to evolve. Based on this, the contractor will support several proof of concepts during the period of performance. The proof of concepts potentially includes but are not limited to

- Performing event processing using FME instead of PL/SQL or a combination of both.
- KML Server performance comparison between GeoServer and ArcGIS Server to support WATERSKMZ.
- Regional KML performance comparison vs. ArcGIS Server.
- Expose WATERS web service (up/dn or navigation delineation) as an ESRI Geoprocessing service which provides better integration with ArcGIS Online (EPA GeoPlatform). A few variations will be potentially evaluated
    - SDE and ArcObjects to perform the processing
    - SDE as a pass-thru/proxy that utilizes underlying RDBMS Stored Procedures
- Precaching and retrieval of delineated catchment boundaries to increase service performance.

- Utilization of a graph database (e.g. Neo4j) to performance upstream/downstream navigation.

Deliverables: Deliverables will be specified based on Technical Directive. For costing purposes, contractor should use historical data for 3 typical deliverables.

TASK 2: Tools, Utilities and Services Support Including Enhancements

The contractor shall monitor and make minor adjustments to the following existing WATERS Components:

Tools and Utilities

- WATERSKMZ
- Code Playground
- JavaScript Library
- Download Service
- HEM2XML

Web and DB Services

- PCSWatersInfo
- PCSWatersInfo2
- CWNSSpatialServices
- SpatialServices
- OWServices
- Catchment Impairment Service

Mapping Services

- ArcGIS Mapping services and associated metadata

To support the maintenance of these components, the contractor shall plan to routinely check for updates to the underlying libraries and/or of software being used in the above items. Changes that cause significant changes to the project schedule, cost, or resources should be provided to EPA for technical direction. The contractor shall provide an itemized list of items that will be checked on a routine basis. As part of this support, the contractor shall continue to maintain the existing GeoPlatform and Reusable Component Service (RCS) entries related to WATERS tools, utilities, and services.

The contractor shall also provide enhancement services for RAD and WATERS based on technical direction.

Deliverables: Deliverables will be specified based on Technical Directive. For costing purposes, contractor should use historical data for 3 typical deliverables.

TASK 3: Documentation and WATERS Website Support

The contractor shall maintain and make minor adjustments to WATERS documentation that includes the WATERS Website and any fact sheets or other documentation

Deliverables: Deliverables will be specified based on Technical Directive. For costing purposes, use historical data.

Task 4: WATERS User Support

The contractor shall answer any questions about the RAD/WATERS or other technical assistance from users. This includes questions about the architecture, services, or other technical question related to RAD/WATERS.

DELIVERABLES REQUIRED AND SCHEDULE FOR COMPLETION OF TASKS

Task	Item Required	Due Date	Number of Copies and Format Requirements
0	Monthly progress report	15 days after the end of the month	1 copy - Word Format or PDF
1	(e.g. Respond to requests from the WACOR and/or Alt WACOR for new content)	Within 3 business days	Respond with a written response or with a level of effort to complete the request.
1A	OWDI Technical Support	Based on technical direction. Deliverable dates will be specified within the technical direction	Describe all work completed in the monthly progress report
1B	Proofs of Concept	Based on technical direction. Deliverable dates will be specified within the technical direction	Describe all work completed in the monthly progress report
2	Tools, Utilities and Services Support Including Enhancements	Based on technical direction. Deliverable dates will be specified within the technical direction	Describe all work completed in the monthly progress report
3	Documentation and WATERS Website Support	Based on technical direction. Deliverable dates will be specified within the technical direction	Describe all work completed in the monthly progress report

4	WATERS User Support	Within 3 days of receipt of a question.	Describe all work completed in the monthly progress report

The Contractor shall notify the CO and WACOR in writing when 75% of the authorized work assignment LOE/labor hours have been expended.

CONTRACT SOW REFERENCE

See Contract SOW Page 1-10 of 14 Section ***3.7 (Information Management) and Section 13.4 (National Hydrography Dataset (NHD)***

ANTICIPATED TRAVEL REQUIREMENTS

All travel shall be approved in advance by the Contract-Level Contracting Officer's Representative (CL-COR) and shall be in accordance with the Contract.

ADDITIONAL REQUIREMENTS:

Office direct costs (ODCs) for copying, postage/courier, supplies, computer usage, and graphics are allowed. No other ODCs are allowable as a direct charge to this delivery order without the prior written approval of the Contracting Officer.

Upon issuance of written technical direction, the Contractor shall submit for inspection of all work in progress at any time under this work assignment. The Contractor shall develop and maintain files supporting each task.

The contractor shall contact the Contracting Officer (CO) and/or the CL-CCOR by telephone to discuss any problems that may adversely affect the work on this Work Assignment. Within five (5) calendar days the contractor shall follow the phone call with a brief written explanation of the problem, including any actions already taken, and/or recommended solutions to correct the problem. Written explanation shall be made available to the CO and the PO.

CONTRACTOR IDENTIFICATION

To avoid any perception that contractor personnel are EPA employees, the contractor shall assure that contractor personnel are clearly identified as independent contractors of EPA when attending meetings with outside parties or visiting field sites.

CONTROL REQUIREMENTS

Quality Assurance Project Plan (QAPP):

Publishing on the NPDES website does not require a QAPP, since the people who generate the data are responsible for the data's quality, and it is their responsibility to develop a QAPP, if one is needed for their primary data uses. The contractor shall provide source references for data that

is published on the website.

Organizational Conflict of Interest:

The Contractor shall warrant that, to the best of the Contractor's knowledge and belief, there are no relevant facts or circumstances which could give rise to an organizational conflict of interest, as defined in FAR Subpart 9.5, or that the contractor has disclosed all such relevant information. See contract clause 1552.209-71 Organization of Conflict of Interest.

Notification of Conflicts of Interest Regarding Personnel:

The Contractor shall immediately notify the CL-COR and the Contracting Officer of (1) any actual or potential personal conflict of interest with regard to any of its employees working on or having access to information regarding this contract, or (2) any such conflicts concerning subcontractor employees or consultants working on or having access to information regarding the contract, when such conflicts have been reported to the Contractor. A personal conflict of interest is defined as a relationship of an employee, subcontractor employee, or consultant with an entity that may impair the objectivity of the employee, subcontractor employee, or consultant in performing the contract work. See Section H.4, contract clause EPAAR 1552.209-73 Notification of Conflict of Interest.

Enforcement Sensitive Information:

The contractor recognizes that contractor employees in performing tasks specified by this WA may have access to data/information, either provided by the government or first generated during contract performance, of enforcement sensitive nature which should not be released to the public without Environmental Protection Agency (EPA) approval. Enforcement sensitive refers to records or information compiled for law enforcement purposes (whether administrative, civil or criminal), the disclosure of which could reasonably be expected to interfere with the enforcement action. It is imperative that all contractor personnel, including but not limited to, subcontractor and consultant personnel assigned to work on this contract and/or WA, or with access to materials developed pursuant to such efforts, understand that this information is confidential and any disclosure or misuse of the information may result in prosecution to the fullest extent of the law. All contractor personnel are expected to exercise due diligence in safeguarding, handling or disposing of any such information.

Project Employee Confidentiality Agreement

The contractor agrees that the contractor employee will not disclose, either in whole or in part, to any entity external to the EPA, the Department of Justice, or the contractor, any information or data (as defined in FAR Section 27.401) provided by the government or first generated by the contractor under this contract, any site-specific cost information, or any enforcement strategy without first obtaining the written permission of the EPA CL-CPR. If a contractor, through an employee or otherwise, is subpoenaed to testify or produce documents, which could result in such disclosure, the contractor must provide immediate advance notification to the EPA so that

the EPA can take action to prevent such disclosure. Such agreements shall be effective for the life and for a period of five (5) years after completion of the contract.

Handling of Confidential Business Information (CBI)

Contractor's access to TSCA CBI must comply with the procedures set forth in the TSCA CBI Security Manual. Likewise, access to FIFRA CBI shall follow the security procedures set forth in the FIFRA Information Security Manual.

To the extent that the work under this contract requires access to proprietary or confidential business or financial data of other companies, and as long as such data remains proprietary or confidential, the contractor shall protect such data from unauthorized use and disclosure.

All files or other information identified as Confidential Business Information (CBI) shall be treated as confidential and kept in a secure area with access limited to only contractor personnel directly involved in the case or special project assignment. The contractor, subcontractor, and consultant personnel are bound by the requirements and sanctions contained in their contracts with the EPA and in EPA's confidentiality regulations found at 40 CFR Part 2, Subpart B. The contractor subcontractors, and consultant must adhere to EPA-approved security plans which describes procedures to protect CBI, and are required to sign non-disclosure agreements before gaining access to CBI.

All official data, findings, and results of investigations and studies completed by the contractor shall be available for EPA and DOJ internal use only. The contractor shall not release any part of such data without the written direction of the WACOR.

Conference/Meeting Guidelines and Limitations

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The WACOR will then prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

PERFORMANCE SURVEILLANCE PLAN			
Performance Requirement	**Measurable Performance Standards**	**Surveillance Methods**	**Incentives/Disincentives**
Management and Communications: During the life of this work assignment, the Contractor shall notify EPA immediately of any issues that may impact the timeliness of deliverables of the problems associated with the development of deliverables.	The Contractor shall maintain contact with the WACOR throughout the performance of the work assignment. The contractor shall identify to the WACOR any delays with regard to deliverables not less than one week prior to the deliverable date that has been established in the work assignment or technical direction document. The contractor shall identify to the WACOR any issues or concerns that have a direct impact on project schedules within three (3) days of occurrence. The contractor shall provide options for EPA's consideration on resolving or mitigating the impacts identified.	WACOR and CL-COR (as necessary) will allocate the time needed to discuss and address all issues identified by the Contractor. The WACOR and CL-COR will document and maintain a complete record of the issues, agreements and outcome. The WACOR and CL-COR will review monthly progress reports for indicators of problems not previously mentioned. The WACOR will also monitor the timely receipt of deliverables. For those that are late without prior notice, the EPA will formally document to the Contracting Officer the late delivery.	If the contractor fails to implement corrective actions after EPA identifies and provided written documentation of performance issues, EPA will rate this performance category "unsatisfactory." If three or more the active work assignments for the period are rated unsatisfactory, EPA will rate the Business Relations category as unsatisfactory in the CPARS Contract Performance System.

Cost Management and Control: The Contractor shall perform all work in an efficient and cost effective manner, applying cost control measures where practical.	The Contractor shall monitor, track and accurately report level of effort, labor cost, other direct cost and fee expenditures to EPA through monthly progress reports and approved special reporting requirements. The Contractor shall assign appropriately leveled and skilled personnel to all tasks. The contractor should not exceed established work assignment ceilings and, in general, should expend dollars and hours at similar ratios. If either the expenditure of hours or dollars deviates significantly, the contractor shall provide an explanation in its Monthly Progress Report.	The CL-COR will routinely meet with the Contractor's Project Manager to discuss the work progress and contract and individual work assignment level expenditures. The CL-COR and WACOR shall review the Contractor's monthly progress reports and request the Work Assignment Managers to ensure that ceilings are not exceeded, that progress is being made, and that the contractor is effectively utilizing the LOE provided under the work assignment.	EPA will thoroughly review work assignment funding ceiling overruns to determine the contractor's ability to control the situation. If EPA determines that the contractor failed to control cost, the contractor will be rated "unsatisfactory" in this category. Multiple incidents of work assignment overrun that result in an overall cost overrun of greater than 4% of the approved total work assignment funding for the current contract period, will result in an unsatisfactory rating in the CPARS Contract Performance System.
Quality of Product/Services: The contractor shall ensure documents developed under this task order are quality products that are factual and based on sound science and engineering principles.	Products delivered under this work assignment must not contain any major factual errors. The analyses provided in each product shall be logical, consistent, and defensible.	The WACOR will review all documents delivered under this work assignment for content accuracy.	If EPA determines that the contractor's analyses is factually inaccurate or if significant technical errors are found in any documents produced by the contractor, EPA may determine that the cost associated with redoing the work shall be borne by the contractor. Multiple incidents of this nature under the contract will result in an unsatisfactory rating for Quality and Manage Control being reported to the CPARS Contract Performance System.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-37

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2018 Base Option Period Number 1	Nutrient Removal LCA

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/01/2017 To 06/30/2018

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (*Max 2*): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 07/01/2016 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Mario Sengco (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-2676 FAX Number: 202-566-9981
Project Officer Name: Tangela Cooper (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0369 FAX Number:
Other Agency Official Name (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature)	7/1/2017 (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-16-003
WORK ASSIGNMENT 1-37

TITLE: Life Cycle and Cost Assessments of Nutrient Removal Technologies in Wastewater Treatment Plants (Phase 2)

WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (WACOR):

COR Name:	**USPS Mailing Address**	**Courier Address**
Mario Sengco	U.S. EPA Headquarters	1301 Constitution Avenue
Phone: 202-566-2676	1200 Pennsylvania Avenue	NW, WJCW 6105AA
Fax: 202-566-0409	NW, Mail Code 4305T	Washington, D.C. 20004
sengco.mario@epa.gov	Washington, D.C. 20460	

PERIOD OF PERFORMANCE: July 1, 2017 through June 30, 2018

BACKGROUND

Cultural eutrophication of waterbodies across the United States is one of the most pervasive environmental issues facing the country today. Whether in lakes or reservoirs, rivers or streams, estuaries or marine coastal waters, the human health, environmental and economic impacts from excessive amounts of nitrogen (N) and phosphorus (P) continue to rise year after year. Communities struggle with nutrient-loving harmful algal blooms (HABs) that produce toxins that can sicken people and pets, contaminate food and drinking water sources, kill fish and other fauna, and disrupt the balance of natural ecosystems. Numerous studies and reports have shown that HABs can raise the cost of drinking water treatment, depress property values, close beaches and fishing areas, and negatively affect the health and livelihood of many Americans. Global climate change is only expected to exacerbate the eutrophication problem even as Federal, state and local governments struggle to address the sources of nutrient pollution.

In partnership with states, tribes and other Federal agencies, EPA has led the effort to address nutrient pollution by assisting states in prioritizing waters, providing scientific and technical assistance in the development of water quality standards for total nitrogen (TN) and total phosphorus (TP), and helping to guide implementation of nutrient criteria in waterbody assessments, the development of total maximum daily loads for impaired waters, and the inclusion of water-quality based effluent limits for point sources dischargers.

Municipal and industrial wastewater plants can be significant point sources of nutrients. Removal of TN and TP can vary significantly depending on the treatment technology used at each facility. For example, biological nutrient removal (BNR) removes TN and TP from wastewater through the use of microorganisms under different conditions in the treatment process. Additional nutrient removal can be achieved by enhanced nutrient removal (ENR)

technologies. At the furthest ends, reverse osmosis (RO) offers the greatest level of treatment, but at the greatest cost, which could be prohibitive for many facilities, although costs can be mitigated at larger treatment scales.

Recent efforts by states and EPA to derive numeric nutrient criteria (NNC) reveal limits that clearly push the boundaries of treatment technologies currently in place for most facilities in the United States. Operators complain that the adoption of these stringent standards would require their facilities towards RO to meet them, eventually creating a significant cost to the public. More recently, however, some concern has been expressed by operators and other stakeholders that there may be significant environmental and health implications as well should facilities move towards treatment technologies that remove more TN and TP to attain the nutrient targets (e.g., Falk et al., 2013). Critics cite environmental, health and economic impacts associated with, for example, greater use of chemicals, disposal of biosolids and brine (from RO), increased energy demands and greater release of greenhouse gases. Studies in other countries also suggest a point of diminishing returns where the economic and environmental consequences begin to outweigh the benefits (e.g., Foley et al., 2010). Such issues that encompass economic, environmental and social costs are at the center of sustainability, while holistic and systematic approaches like LCA and LCCA are good tools to apply to these kinds of issues.

LCAs are now a widely-accepted technique to assess the environmental aspects and potential impacts associated with a product, process, or service. Essentially, LCAs provide a complete "cradle-to-grave" analysis of environmental impacts and benefits that can better inform and assist in selecting the most environmentally preferable choice among the various treatment options. The steps for conducting an LCA include (1) identifying goal and scope, (2) compiling an inventory of relevant energy and material inputs and environmental releases, (3) evaluating the potential environmental impacts associated with identified inputs and releases, and (4) interpreting the results to help individuals make a more informed decision. This work assignment will apply standardized methods for conducting LCA to evaluate and compare various nutrient removal technologies at wastewater treatment plants.

LCAA is a complimentary process to LCA for evaluating the total economic costs of an asset by analyzing initial costs and discounted future expenditures over the life cycle of an asset (Rahman and Vanier, 2004). It is used to evaluate differences in cost and the timing of costs between alternative projects. The combination of the LCA and LCCA will provide a full picture of costs, both quantitative and qualitative, for various nutrient removal processes over a period of time.

Through this work OST will be better positioned to quantitatively balance environmental impacts in the context of nutrient variances using 40 CFR 131.10(g)(3)[1], to frame progress in terms of implementation of numeric nutrient criteria (NNC) better, and to align itself with broader sustainability efforts across the Agency. The results of this project can also be shared with stakeholders among the regulated community in the states. This information can be used to inform planning and decision making as to future investments and efforts regarding local facilities that takes into account sustainability. The results of this study may reveal, for example,

[1] 40 CFR 131.10(g)(3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;

alternative ways to addressing nutrient pollution that balances infrastructure and point source controls with non-point source controls and best management practices.

PURPOSE AND OBJECTIVE

The purpose of this contract is to provide technical assistance to the U.S. Environmental Protection Agency, Office of Water, Office of Science and Technology (OST), in conducting life cycle assessments (LCAs) and life cycle cost assessment (LCCAs) for various nutrient (i.e., nitrogen and phosphorus) removal technologies in wastewater treatment facilities. In addition to administrative and program services, technical assistance is expected to include engineers, scientists, statisticians and other professionals with knowledge and expertise in LCAs and LCCAs as well as wastewater treatment technologies in general, and nutrient removal technologies specifically. The contractor is expected to follow established, international standard procedures (e.g., ISO 14040:2006, see references) for performing LCAs and LCCAs, and consider, for example, a range of environmental and human health impacts (such as global warming, eutrophication, smog, ozone deletion, cancer, non-cancer, energy use and climate-change), and benefits (e.g., energy recovery, displacement of phosphorus production, co-removal of contaminants in addition to nutrients)

More specifically, the contractor will finalize the initial LCA/LCCA effort under a previous project in order to produce a report that will be submitted for peer review and eventually shared within the Agency. During the period of performance, the contractor, under this Work Assignment, will (1) complete any remaining analyses, including sensitivity analyses (2) address any edits, comments and revisions by EPA staff and reviewers, and (3) submit an interim report that is suitable for peer-review. The contractor will ensure compliance with Agency standards.

SCOPE OF WORK

TASK 0: WORK ASSIGNMENT MANAGEMENT

The contractor shall routinely provide performance updates, estimated costs, level of effort (LOE) and key deliverables upon request from EPA's Work Assignment Manager (WACOR) and/or Alternative WACOR for all ongoing tasks. Regularly scheduled bi-weekly conference calls and in-person meetings, as needed, will be coordinated between EPA's WACOR and the contractor to discuss the work assignment and progress of tasks. In addition, the contractor shall provide a monthly progress report that includes implementation plan(s); issues encountered and lessons learned regarding the progress of all tasks, the tracking of expenditures, and any other administrative activities, as requested.

Deliverables: The contractor shall provide a monthly progress report that will include the work conducted, issues encountered (if any), how the issues were resolved (if any) and anticipated work for the next period. The contractor shall maintain a cumulative list of all technical directives. The contractor shall report in accordance with Contract Reporting Requirements.

TASK 1: Work Plan and Quality Assurance Project Plan (QAPP)

The contractor shall submit a written work plan with a detailed budget and labor schedule for the completion of each task 15 calendar days following receipt of the work assignment.

Included in the work plan, the contractor shall propose an approach for the development of the Quality Assurance Project Plan (QAPP) based on one of the following:

1. Submit the contractor's approved QAPP from the earlier project (under a different contract) because this WA is a continuation of that earlier work, and there are no differences. If the contractor selects this approach, the contractor shall resubmit the QAPP and begin work on Tasks 2 and 3 immediately.
2. Submit a modified version of the contractor's approved QAPP from the earlier project to reflect any revisions to account of the work in the WA. If the contractor selects this approach, the contractor shall submit the QAPP within 21 days of the receipt of the WA. The contractor shall begin work on Tasks 2 and 3 after the revised QAPP is approved.
3. If neither of the previous two options are appropriate, provide a justification for preparation of an entirely new QAPP. If the WACOR concurs, the contractor shall prepare and submit the new QAPP within 30 calendar days of receipt of the WA. The EPA Task Order Project Officer (TOPO) shall submit the draft for internal EPA review and approval. The contractor shall revise the QAPP in order to fully address EPA's review comments, if any. EPA approval of the QAPP must be obtained before the contractor may begin Task 2 and Task 3.

Deliverables: Work Plan (15 calendar days following receipt of the work assignment). QAPP (variable, depending on option selected)

TASK 2: Completion of Analyses

The contractor shall review the status of the earlier LCA and LCCA project/report, which the contractor produced under a different contract, and provide a summary of remaining analyses that must be completed. The contractor shall discuss the summary of analyses with EPA WACOR and other EPA workgroup members to reach consensus which analyses to prioritize, including any additional analyses recommended by EPA management and workgroup, before proceeding with the analyses.

As needed, the contractor shall follow the procedure for entering and documenting data established in the EPA's Standard Operating Procedure (SOP such as the ISO 14040:2006, see references) for Life Cycle Assessment Projects Involving Data Collection. The contractor shall follow the QAPP established for the effort (ref. Task 1 above).

Deliverables: The deliverable (i.e., results of the analyses) shall be submitted in a report due on October 31, 2017.

TASK 3: Revisions to Draft Report

The EPA WACOR will share with the contractors the feedback from an informal review of the draft report. The contractors shall schedule a meeting with the EPA WACOR and workgroup to discuss the feedback and potential revisions to address the comments. The contractors shall receive confirmation from the EPA COR to proceed with the revisions to the draft report to produce the next version.

Deliverables: The deliverable (i.e., new version of the report) shall be due on December 29, 2017

References cited in this section:

Falk, M.W., Reardon, D.J., Neethling, J.N., Clark, D.L. and Pramanik, A. (2013) Striking the balance between nutrient removal, greenhouse gas emissions, receiving water quality and costs. Wat. Environ. Res., 85(12): 2307-2316.

Falk, M.W., Neethling, J.B., Reardon, D.J. (2011) Striking the balance between nutrient removal in wastewater treatment and sustainability. Water Environment Research Federation Report NUTR1R06n. IWA Publishing, London, U.K.

Foley, J., de Haas, D., Hartley, K., and Lant, P. (2010) Comprehensive life cycle inventories of alternative wastewater treatment. Water Res., 44(5): 1654-1666.

ISO (International Organization for Standardization) 14040:2006. Second edition. Environmental management – Life Cycle Assessment – Principles and framework. Publication date: July 1, 2006

Rahman, D. and Varnier, D.J, (2004) Life cycle cost analysis as a decision support tool for managing municipal infrastructure. In. *Proceedings of the CIB 2004 Triennial Congress*, Toronto, Ontario, May 2-9, 2004, pp1-2. International Council for Research and Innovation Building and Construction, Rotterdam, Netherlands.

DELIVERABLES REQUIRED AND SCHEDULE FOR COMPLETION OF TASKS

Task	Item Require	Due Date	Number of Copies and Format Requirements
0	Monthly progress report	Last week day of each month	1 copy - Word Format or PDF
1	Work Plan	15 calendar days following receipt of the WA	1 copy - Word Format or PDF
	QAPP	Variable, depending on option selected (See Task 1)	1 copy - Word Format or PDF

2	Report	October 31, 2017	1 copy - Word Format
3	New version of Report	December 29, 2017	1 copy - Word Format

The Contractor shall notify the CO and EPA WACOR in writing when 75% of the authorized work assignment LOE/labor hours have been expended.

CONTRACT SOW REFERENCE

See Contract SOW Page 1-10 of 14 ***Task # "Task Title", Page # - # of # Task # Task Name***
[WA 3-13]

ANTICIPATED TRAVEL REQUIREMENTS

All travel shall be approved in advance by the Contract-Level Contracting Officer's Representative (CL-COR) and shall be in accordance with the Contract.

ADDITIONAL REQUIREMENTS

Office direct costs (ODCs) for copying, postage/courier, supplies, computer usage, and graphics are allowed. No other ODCs are allowable as a direct charge to this delivery order without the prior written approval of the Contracting Officer.

Upon issuance of written technical direction, the Contractor shall submit for inspection of all work in progress at any time under this work assignment. The Contractor shall develop and maintain files supporting each task.

The contractor shall contact the Contracting Officer (CO) and/or the CL-CCOR by telephone to discuss any problems that may adversely affect the work on this Work Assignment. Within five (5) calendar days the contractor shall follow the phone call with a brief written explanation of the problem, including any actions already taken, and/or recommended solutions to correct the problem. Written explanation shall be made available to the CO and the PO.

CONTRACTOR IDENTIFICATION

To avoid any perception that contractor personnel are EPA employees, the contractor shall assure that contractor personnel are clearly identified as independent contractors of EPA when attending meetings with outside parties or visiting field sites.

CONTROL REQUIREMENTS

Quality Assurance Project Plan (QAPP):

Publishing on the NPDES website does not require a QAPP, since the people who generate the data are responsible for the data's quality, and it is their responsibility to develop a QAPP, if one is needed for their primary data uses. The contractor shall provide source references for data that is published on the website. (See Task 1)

Organizational Conflict of Interest:

The Contractor shall warrant that, to the best of the Contractor's knowledge and belief, there are no relevant facts or circumstances which could give rise to an organizational conflict of interest, as defined in FAR Subpart 9.5, or that the contractor has disclosed all such relevant information. See contract clause 1552.209-71 Organization of Conflict of Interest.

Notification of Conflicts of Interest Regarding Personnel:

The Contractor shall immediately notify the CL-COR and the Contracting Officer of (1) any actual or potential personal conflict of interest with regard to any of its employees working on or having access to information regarding this contract, or (2) any such conflicts concerning subcontractor employees or consultants working on or having access to information regarding the contract, when such conflicts have been reported to the Contractor. A personal conflict of interest is defined as a relationship of an employee, subcontractor employee, or consultant with an entity that may impair the objectivity of the employee, subcontractor employee, or consultant in performing the contract work. See Section H.4, contract clause EPAAR 1552.209-73 Notification of Conflict of Interest.

Enforcement Sensitive Information:

The contractor recognizes that contractor employees in performing tasks specified by this WA may have access to data/information, either provided by the government or first generated during contract performance, of enforcement sensitive nature which should not be released to the public without Environmental Protection Agency (EPA) approval. Enforcement sensitive refers to records or information compiled for law enforcement purposes (whether administrative, civil or criminal), the disclosure of which could reasonably be expected to interfere with the enforcement action. It is imperative that all contractor personnel, including but not limited to, subcontractor and consultant personnel assigned to work on this contract and/or WA, or with access to materials developed pursuant to such efforts, understand that this information is confidential and any disclosure or misuse of the information may result in prosecution to the fullest extent of the law. All contractor personnel are expected to exercise due diligence in safeguarding, handling or disposing of any such information.

Project Employee Confidentiality Agreement

The contractor agrees that the contractor employee will not disclose, either in whole or in part, to any entity external to the EPA, the Department of Justice, or the contractor, any information or data (as defined in FAR Section 27.401) provided by the government or first generated by the contractor under this contract, any site-specific cost information, or any enforcement strategy without first obtaining the written permission of the EPA CL-CPR. If a contractor, through an employee or otherwise, is subpoenaed to testify or produce documents, which could result in such disclosure, the contractor must provide immediate advance notification to the EPA so that the EPA can take action to prevent such disclosure. Such agreements shall be effective for the life and for a period of five (5) years after completion of the contract.

Handling of Confidential Business Information (CBI)

Contractor's access to TSCA CBI must comply with the procedures set forth in the TSCA CBI Security Manual. Likewise, access to FIFRA CBI shall follow the security procedures set forth in the FIFRA Information Security Manual.

To the extent that the work under this contract requires access to proprietary or confidential business or financial data of other companies, and as long as such data remains proprietary or confidential, the contractor shall protect such data from unauthorized use and disclosure.

All files or other information identified as Confidential Business Information (CBI) shall be treated as confidential and kept in a secure area with access limited to only contractor personnel directly involved in the case or special project assignment. The contractor, subcontractor, and consultant personnel are bound by the requirements and sanctions contained in their contracts with the EPA and in EPA's confidentiality regulations found at 40 CFR Part 2, Subpart B. The contractor subcontractors, and consultant must adhere to EPA-approved security plans which describes procedures to protect CBI, and are required to sign non-disclosure agreements before gaining access to CBI.

All official data, findings, and results of investigations and studies completed by the contractor shall be available for EPA and DOJ internal use only. The contractor shall not release any part of such data without the written direction of the WACOR.

Conference/Meeting Guidelines and Limitations

The contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

PERFORMANCE SURVEILLANCE PLAN			
Performance Requirement	**Measurable Performance Standards**	**Surveillance Methods**	**Incentives/Disincentives**
Management and Communications: During the life of this work assignment, the Contractor shall notify EPA immediately of any issues that may impact the timeliness of deliverables of the problems associated with the development of deliverables.	The Contractor shall maintain contact with the WACOR throughout the performance of the work assignment. The contractor shall identify to the WACOR any delays with regard to deliverables not less than one week prior to the deliverable date that has been established in the work assignment or technical direction document. The contractor shall identify to the WACOR any issues or concerns that have a direct impact on project schedules within three (3) days of occurrence. The contractor shall provide options for EPA's consideration on resolving or mitigating the impacts identified.	The WACOR and CL-COR (as necessary) will allocate the time needed to discuss and address all issues identified by the Contractor. The WACOR and CL-COR will document and maintain a complete record of the issues, agreements and outcome. The WACOR and CL-COR will review monthly progress reports for indicators of problems not previously mentioned. The WACOR will also monitor the timely receipt of deliverables. For those that are late without prior notice, the EPA will formally document to the Contracting Officer the late delivery.	If the contractor fails to implement corrective actions after EPA identifies and provided written documentation of performance issues, EPA will rate this performance category "unsatisfactory." If three or more the active work assignments for the period are rated unsatisfactory, EPA will rate the Business Relations category as unsatisfactory in the CPARS Contract Performance System.
Cost Management and Control: The Contractor shall perform all work in an efficient and cost effective manner, applying cost control measures where practical.	The Contractor shall monitor, track and accurately report level of effort, labor cost, other direct cost and fee expenditures to EPA through monthly progress reports and approved special reporting requirements. The Contractor shall assign appropriately leveled and skilled personnel to all tasks. The contractor should not exceed established work	The CL-COR will routinely meet with the Contractor's Project Manager to discuss the work progress and contract and individual work assignment level expenditures. The CL-COR and WACOR shall review the Contractor's monthly progress reports and request the Work Assignment Managers to	EPA will thoroughly review work assignment funding ceiling overruns to determine the contractor's ability to control the situation. If EPA determines that the contractor failed to control cost, the contractor will be rated "unsatisfactory" in this category. Multiple incidents of work assignment overrun that result in an overall cost overrun of greater than 4% of the approved

	assignment ceilings and, in general, should expend dollars and hours at similar ratios. If either the expenditure of hours or dollars deviates significantly, the contractor shall provide an explanation in its Monthly Progress Report.	ensure that ceilings are not exceeded, that progress is being made, and that the contractor is effectively utilizing the LOE provided under the work assignment.	total work assignment funding for the current contract period, will result in an unsatisfactory rating in the CPARS Contract Performance System.
Quality of Product/Services: The contractor shall ensure documents developed under this task order are quality products that are factual and based on sound science and engineering principles.	Products delivered under this work assignment must not contain any major factual errors. The analyses provided in each product shall be logical, consistent, and defensible.	The WACOR will review all documents delivered under this work assignment for content accuracy.	If EPA determines that the contractor's analyses is factually inaccurate or if significant technical errors are found in any documents produced by the contractor, EPA may determine that the cost associated with redoing the work shall be borne by the contractor. Multiple incidents of this nature under the contract will result in an unsatisfactory rating for Quality and Manage Control being reported to the CPARS Contract Performance System.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-37

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-16-003	07/01/2016 To 06/30/2018 Base Option Period Number 1	Nutrient Removal LCA

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 03/07/2018 To 06/30/2018

Comments:
The purpose of this Amendment 1 is to remove the previously established funding ceiling of $35,000.00 as this Work Assignment is now fully funded.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period:	Cost/Fee:	LOE:
07/01/2016 To 06/30/2018		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Mario Sengco (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-2676 FAX Number:
Project Officer Name: Tangela Cooper (Signature) (Date)		Branch/Mail Code: Phone Number: 202-566-0369 FAX Number:
Other Agency Official Name (Signature) (Date)		Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature)	3/7/2018 (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number: